SEARCH AND RESEARCH: TEACHER EDUCATION FOR CONTEMPORARY CONTEXTS
CONTENTS

Foreword .........................................................................................................................i
Preface ..........................................................................................................................iii
Acknowledgements .......................................................................................................v

Introduction .................................................................................................................... 1

PART I. The development of knowledge and understanding of teaching practices .................................................................5

The universe of supervision: an inclusive approach within the teacher training domain (Elsa Morgado, Mário Cardoso, João Rodrigues, and Levi Silva) ................................................................. 7
Learning to be Practitioner Inquirers and Researchers: Lessons from a Teacher Education Program (Meher Rizvi) ..........................................................................................................................17
The added value of encouraging morally courageous behavior via initial teacher education- Insights from the Stories of Israeli Educators (Roni Reingold, and Lea Baratz) ..........................................................................................................................27
“Who can support me?”: Studying teacher leadership in a Hong Kong primary school (Yuen-Shan Tse, Sally Wai-Yan Wan, Thomas Wing-Ki Lee, Wing-Ki Tsang, Vincent Kin-Chung Cheung, Ylena Yan Wong, Kelvin Shing-Pan Chong, Zachary Hon-Fung Ng, and Ada Wing-Tung Wan) .......................................................................................................................... 37
Partnerships and relationships to support student teacher’s self-regulated learning (Lyn McDonald) ................................................................................................................................. 55
Manifestation the levels of teachers professional agency: toward a conceptual framework (Khalil Gholami) ........................................................................................................................ 63
Perceived preparedness and teaching beliefs of differentiated instruction: From prospective teachers’ perspective (Sally Wai-Yan Wan) .......................................................................................................................... 73
Undergraduate degrees and basic education early years: a necessary interlocution in teacher education (Joana Paulin Romanowski, Pura Lucia Oliver Martins, and Simone Regina Manosso Cartaxo) .......................................................................................................................... 101
Teacher Education Needs an Epistemology of Practice (Tom Russell, and Andrea K. Martin) ................................................................................................................................. 111
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation of the tutoring process with teachers in elementary schools in Mexico</td>
<td>Juan Manuel Manzano-Torres, Leonardo David Glasserman-Morales, and Juanjo Mena</td>
</tr>
<tr>
<td>Perspectives of teachers on the reputation of their profession in society</td>
<td>Barbara Šteh, Jana Kalin, and Renata Čepić</td>
</tr>
<tr>
<td>Rethinking modeling in pre-service teacher education: implications for teacher educators</td>
<td>Manuel Goizueta, Helena Montenegro Maggio, Francisco Rojas Sateler, and María Paz González Vallejos</td>
</tr>
<tr>
<td>Pedagogical confrontations as a lens for reflective practice in teacher education</td>
<td>Wendy Moran, Robyn Brandenburg, and Sharon McDonough</td>
</tr>
<tr>
<td>What Counts as Expert Practice? A Discursive Analysis of Experienced Teachers’ Perceptions</td>
<td>Marc Turut</td>
</tr>
<tr>
<td>A Narrative Inquiry Into Taiwanese Grade School Teachers’ Practice of Chinese as a Foreign Language in the Philippines</td>
<td>Chih-Pu Dai</td>
</tr>
<tr>
<td>Studentship: Beyond normative conceptions of civic education in Québec’s ERC program</td>
<td>Ilham Reda, and Erin Reid</td>
</tr>
<tr>
<td>Acknowledging complexity: teaching practices at the core</td>
<td>Kathleen Feremans, Jan Elen, Ele Holvoet and Tim Christiaens</td>
</tr>
<tr>
<td>U.S.-educated and Taiwan-educated Taiwanese Teachers of English: Capital and Agency</td>
<td>Pei-Chia Liao</td>
</tr>
<tr>
<td>Continuous teacher education - a study based on the phases and cycles elaborated by Huberman</td>
<td>Alboni Marisa Dudeque Pianovski Vieira</td>
</tr>
<tr>
<td>Modeling Changes in Teacher Efficacy during In-Service Professional Development in Trinidad and Tobago</td>
<td>Sharon J. Jaggernauth</td>
</tr>
<tr>
<td>The reflexive diaries of mentors in an induction program</td>
<td>Carmen Gallego-Domínguez, Paulino Murillo Estepa, and Carlos Marcelo García</td>
</tr>
<tr>
<td>Building teacher professional identity strategies: discourse analysis of Teacher Training Course student’s textual narratives</td>
<td>Luciana Maria Viviani, Verónica Marcela Guridi, and Elen Fabi</td>
</tr>
<tr>
<td>Student Teachers’ Journey in Professionalism</td>
<td>Birsen Tütünüş, and Duygu Yalman</td>
</tr>
<tr>
<td>Teaching as a discursive practice: new perspectives for teacher education</td>
<td>Helena Montenegro</td>
</tr>
<tr>
<td>Teachers' professional development in the context of a nation-wide project on reading literacy</td>
<td>Bara Olga Marentič Požarnik, and Fani Nolimal</td>
</tr>
</tbody>
</table>
Teacher Learning with Assessment in Singapore: Classroom Assessment as Searching and Researching into Teaching (Heng Jiang)...............................279

Mediation Learning in Classroom: A study with teachers and trainees (Tatiane Lebre Dias, Sónia Regina Fiorim Enumo, and Kelly Ambrozio Silveira) ........................................................................................................289

The mediation of Philosophy subject matter. A comparative case study (Laura Sara Agrati)........................................................................................................299

Investigating EFL Elementary Student Teachers’ Development in a Professional Learning Practicum (Chiou-hui Chou).........................................................309

Utility of the professional diary to perfect teaching practice (Paula Martín Gómez, and Mª Luisa García Rodríguez).................................................................319

Confronting the problem of embodiment in education (Luiz Sanches Neto, and Alan Ovens) ........................................................................................................329

Influence of learning attitudes and task-based interactive approach on ESL-student satisfaction and perceived learning outcomes in a research methodology course (Leah Li Echiverri, and Keith Lane).............................................337

Peer enhancement of learning and teaching for teacher educators (Jenene Burke, Margaret Plunkett, and Boli Li) ........................................................................347

Responsive teachers in inclusive practices (Hafdis Guðjónsdóttir, Edda Öskarsdóttir, and Jóhanna Karlsdóttir) ..............................................................................357

An attempt to study different forms of supportive roles in school based professional development. Significant elements and similarities (George Bagakis)........................................................................................................367

Thai Rural Science Teachers’ Self-Perceptions about Efficacy, Confidence and Attitude toward STEM Education (Siroj Srisarakorn, and Chatree Faikhamta)........................................................................375

Knowing the pre-service teachers’ beliefs in order to promote equity, inclusion and quality. Validation of a scale on teachers’ motivations (MTS) (Andrea Ciani, and Ira Vannini)........................................................................................................385

Emancipatory teaching practices in the understandings of Social Sciences teachers on a Diploma of Education programme Stephen Geoffroy, Benignus Bitu, Dyann Barras, Samuel Lochan, Lennox McLeod, Lystra Stephens-James, and Antoinette Valentine Lewis)........................................................................................................397

History curriculum and national identity: a search on teaching practices in Southern Italian School (Loredana Perla, and Viviana Vinci)..............................409
Narrative of experience from school physical education: the case of a Brazilian woman (Luciana Venâncio) ................................................................. 419
Teacher’ personal theories of knowledge development (Riaz Hussain, and Meher Rizvi) ........................................................................................................ 429
From fetishism to narcissism – The ideological appeal of the policies for higher education in Brazil (Rosimê da Conceição Meguins) ........................................ 437
Secondary school teachers and their academic training: The opinion of its protagonists (Iria Calleja- Barcia, and Margarita Pino-Juste) ........................................ 445
Primary school teachers’ professional agency in the course of an in-service training programme (Merja Kauppinen, Johanna Kainulainen, Päivi Hökkä, and Katja Vähäsantanan) ........................................................................................................ 455
Teacher collaboration and professional development: findings from a case study (Maria Manuela Unas, Sandra Raquel Gonçalves Fernandes, Eusébio André Machado, and Maria Assunção Flores) ........................................................................................................ 465
School leadership: results from a case study at a teacher training school in Benguela province (Marta Abelha, Justino Kayumbuka, Ana Silvia Albuquerque, and Eusébio André Machado) ........................................................................................................ 465
Plotlines in preservice teachers’ relationships with second language learners (Stefinee Pinnegar, Celina Lay, Linda Turner, Jenna Granados, and Sarah Witt) ........................................................................................................ 485
Instructional collaborative practices: a Brazilian case study (Ana Paula Bossler and Pedro Z. Caldeira) ........................................................................................................ 495
“It is important to look into own practice” Developing teacher education pedagogy in drama (Ása Helga Ragnarsdóttir, and Hafdís Guðjónsdóttir) ...... 505
Am I a teacher educator? Search of self identity (Manpreet Kaur) ............ 515
Integrating Theory and Practice in Initial Teacher Education (Maria Inês Marcondes, Vânia Finboldt Angelo Leite, and Rosane Karl Ramos) ................. 525
The practicum model in Teacher Education studies of the University of Girona: connecting theory and practice (Mariona Masgrau-Juanola, Víctor López-Ros, Josep Maria Serra-Bonet, and Margarida Falgàs-Isern) ................. 535
PART II. Teacher Education and competencies: social competencies, problem-solving competences, and pedagogical competencies ................................................................. 545

Initial training of future teachers of Secondary Education: an assessment of the pedagogical competences acquired (Marcos Cabezas, and Sonia Casillas) ........................................................................................................................................................................... 547

Strengthening social competencies and problem solving competencies in the children: early interventions (Anjali Shokeen) ................................................................................................................ 557

Complex theoretical construction about the evaluation indicators of the permanent training plan of the teacher of the IUTPC (Katty Ramírez de Velásquez) ........................................................................................................................................................................ 567

Development of professional skills on teaching practice: student teachers’ and mentor teachers’ views (Hana Horká, and Jana Kratochvílová) ................................................ 579

The importance of resilience in beginning teachers (Gloria Gratacós, Santiago Sastre, Inmaculada Rodríguez, and Monika Ciesielkiewicz) .......................................................... 591

Function of teaching practices in the acquisition of professional knowledge (Raquel Gómez Sánchez, María Luísa García Rodríguez, and Juanjo Mena Marcos) ................................................................................................................................. 605

Are researching skills taught in the practicum for the degree of early childhood education at Salamanca University? (Marisa García, and Marta Franco) ........................................................................................................................................................................... 615

Pre-service teachers’ perspectives on their experience in a school-based Practicum. A mixed methods approach (Ana Mª Pinto-Llorente, Marcos Cabezas-González, and Sonia Casillas-Martín) ........................................................................................................................................................................ 625

Integrated strategy to investigate competence-based training and teacher development in Secondary and University education (María Concepción Domínguez, Fuensanta Hernández-Pina, Antonio Medina, Ernesto López-Gómez, Vito José de Jesús Carioca, and Fernando Ribeiro Gonçalves) ................................................................................................................................. 637

Providing the Competencies for the Future in University. A Case Study (Andron Daniela Roxana) ................................................................................................................................. 647

Pedagogic training disciplines of the Program for Teaching improvement in the post-graduation of the USP campus of Ribeirão Preto: challenges and possibilities (Noeli Prestes Padilha Rivas, and Glancia Maria da Silva) .... 659
PART III. Engaging learning environments for sustainability of learning and teaching practices ........................................ 667

Inclusive classroom: Teacher–student relationships (Outi Kyrö-Ämmälä, Suvi Lakkala, and Tuija Tuurnen) ................................................................. 669

Advantages of extracurricular activities for rural environment students (Margarita Pino Juste, and Lucía Pumares Lavandeira) ...................................... 679

Respondents to, or agents of, change? Teaching ‘soft skills’ in a school-university partnership project (Michelle Ludecke) ................................................. 689

Playing with LEGO-bricks as an innovative pedagogical tool at pre-university and university levels for teaching urbanism (Inmaculada Mohino, Eloy Solís, and José María Coronado) ............................................................. 701

Project-Based Learning: Three College Collaborative Learning Experiences (Alicia de la Peña, Nuria Mendoza, and Teresa Lamas) .............. 729

Designing and Implementing Engaging Learning Environments: Kindergarten Teachers’ Perceptions in three Chinese Societies (Peng Xu, Haidan Liu, Jing Li, and Beibei Shi) ................................................................. 737

Transforming Schooling Through Student Advocacy (Bernie Neville) ...... 747

Rube Goldberg machines and STEM education: a Brazilian case study (Pedro Z. Caldeira, and Ana Paula Bossler) .............................................................. 755

If two-thirds of classroom talk is still by the teacher: the kind of science teacher’s talk and use of language during teaching for all learners in any science classroom (Samuel Ouma Oyoo) ......................................................... 765

When attention to proficiency in, context of use and precision in use, and polysemy [nature of the science language] counts best during science teaching (Samuel Ouma Oyoo) ................................................................. 773

Innovative field experiences in teacher education: An evaluation of sequential and parallel teaching by student teachers, mentors and pupils (Mathea Simons, and Marlies Baeten) ................................................................. 781

An Excel® application for calculus in Geomatics Engineering (Carlos Enríquez, María Isabel Ramos, and Manuel López). .............................................. 791

Worlds of Curriculum Making (Eliza Pinnegar) ............................................. 805

“Shared vision? It’s not my business!” Hong Kong prospective teachers’ perceptions of professional learning communities (PLC) (Sally Wai-Yan Wan, Zachary Hon-Fung Ng, Yuen-Shan Tse, Alice Hoi-Yan Hui, Rita Hau-
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prospective teachers’ teaching beliefs about differentiated instruction in Hong Kong and Turkey (Sally Wai-Yan Wan, and Ruhan Karadag)</td>
<td>823</td>
</tr>
<tr>
<td>Jottings for the modernization of professional practices in the first stages of the training of mathematics teachers. A screening by nodes of praxeological configuration (Juan Albadan)</td>
<td>837</td>
</tr>
<tr>
<td>Theory becomes practice in community: Applying community of practice theory to doctoral education (Özge Hacifazlıoğlu, Kate Olson, David Lee Carlson, and Christopher Michael Clark)</td>
<td>847</td>
</tr>
<tr>
<td>Professional insertion as a reflexive process (Helena Amaral da Fontoura, and Filomena de Arruda Monteiro)</td>
<td>855</td>
</tr>
<tr>
<td>Students’ Perceptions of Online Cultural Exchanges (Hsiao-fang Cheng)</td>
<td>863</td>
</tr>
<tr>
<td>Coaching in education: what are we talking about? (M. Carmen González-Valderas)</td>
<td>871</td>
</tr>
<tr>
<td>Storytelling and living praxis in the pre-service teacher classroom (Brian Mundy)</td>
<td>881</td>
</tr>
<tr>
<td>The Attention-Deficit Hyperactivity Disorder (ADHD) in the school context (Luís Martins Oliveira, Marcelino Arménio Pereira, Teresa Pires Medeiros, and Ana Maria Serrano)</td>
<td>893</td>
</tr>
<tr>
<td>Building a Professional Community of Teacher Educators through a Self-Study Network in Chile (Rodrigo Fuentealba, Tom Russell, and Carolina Hirmas)</td>
<td>903</td>
</tr>
<tr>
<td>Could self-determined learning be a useful method to increase self-efficacy in mathematics and to reduce math anxiety? (Marcut Ioana Gabriela)</td>
<td>911</td>
</tr>
<tr>
<td>The DidaSco Project: a training program for the teachers’ professional development (Loredana Perla, Viviana Vinci, and Laura Sara Agrati)</td>
<td>921</td>
</tr>
<tr>
<td>How and why classroom discourse can enhance students learning and achievement (Pedro Z. Caldeira, and Ana Paula Bossler)</td>
<td>931</td>
</tr>
<tr>
<td>What evaluates teachers in training and teacher in exercise of primary education about human nutrition? (Juan Carlos Rivadulla-López, Maria-Jesús Fuentes-Silveira, and Cristina Martínez Losada)</td>
<td>941</td>
</tr>
<tr>
<td>The Development of Beginning Chemistry Teachers’ Understandings of and Ability to Translate the Nature of Science Within a PCK-Based NOS Program (Surayot Supprakob, Chatree Faikbamta, and Potjanart Suwanruji)</td>
<td>951</td>
</tr>
</tbody>
</table>
Developing STEM Teachers through both Informal and Formal Learning Experiences (Donna Stokes, Paige Evans, and Cheryl Craig) ........................................... 961

Language and literacy development for English language learners: Exploring the potential of literacy events (Jason Jay, Mike Richardson, Alessandro Rosborough, and Brad Wilcox) ................................................................. 973

Building teacher professional identities: required knowledge according to Teacher Training Course student narratives (São Paulo/Brazil) (Celi Rodrigues Chaves Dominguez, Valéria Cazetta, Luciana Maria Viviani, Josely Cubero, and Fabiana Curtopassí Pioker-Hara) .................................................. 983

Changing teacher education scenario in India: issues and challenges (Balwant Singh, and Manpreet Kaur) .......................................................................................................................... 993

PART IV. Innovatives practices and ICT .............................................. 1003

Teachers’ Digital Skills training by using the Educational Innovation based on Evidence methodology (EIBE) (Celia Paola Sarango-Lapo, Juanjo Mena, and María-Soledad Ramírez-Montoya) ............................................................................................................................. 1005

Education, Cinema and Science Teacher Education Program: the right to gaze at the gaze of the camera (Valéria Cazetta, Celi Rodrigues Chaves Dominguez, Fabiana Curtopassí Pioker-Hara, and Josely Cubero) ................... 1015

Use of Virtual Labs in Health Sciences Degrees (Juan José Serrano-Pérez, Isabel García-Arnandis, Nicla Flacco, Lorena González, Ana Pellín-Carcelén, Carlos Romá-Mateo, Gonzalo Pérez-López, and Alida Taberner-Cortés) .......... 1025

Can mobile devices help students improve their academic results? (Laura Cabeza García, Daniel Alonso Martínez, Nuria González Álvarez, and José Luis de Godos Díez) .............................................................................................................. 1037

A proposal of indicators for assessing the digital competence of 12 year olds: a model adapted from DIGCOM 2.0 (Sonia Casillas Martín, Ana García-Valcárcel Muñoz-Repiso, Ana Mª Pinto Llorente, Luís González Rodero, and Verónica Basilotta Gómez-Pablos) ............................................................... 1051

Diagnostic assessment of the conceptual knowledge of technology in future teachers of Early Childhood Education (Sonia Casillas, Marcos Cabezas, and Ana María Pinto) .............................................................. 1061
Study on the personal indicators that influence the development of digital competence in primary education students (Marta Martín del Pozo, and Marcos Cabezas González) ................................................................. 1071

Video games and higher education students from the Degree in Pedagogy: Attitude towards collaborative learning with video games and other related variables (Marta Martín del Pozo, Verónica Basilotta Gómez-Pablos, and Ana García-Valcárcel Muñoz-Repiso) ........................................................................ 1081

Parallel Stories: Teachers and Facilitators in a Transformative Online Teacher Learning Community (Jing Li, Xiaohong Yang, and Cheryl J. Craig ) ........................................................................................................ 1093

How to improve understanding using 3D objects in eBooks and augmented reality (Rocio Ruiz Rodarte) ................................................................................................................................. 1101

The reflective professor's training and the use of technology in education (Tiago Bacciotti-Moreira) ........................................................................................................................................... 1111

What skills do I need to teach online? Researching experienced teacher views of essential knowledge and skills in online pedagogy as a foundation for designing professional development for novice teachers (Catherine McLoughlin, and Maria Northcote) ........................................................................................................................................ 1119

Collaborative work with Android Applications: research and practice (María Teresa González, Yuliet Coello, María José Cáceres, José Chamoso, and Myriam Codes) ................................................................................................................ 1131

The use of video during professional experience for initial teacher education (Michael Cavanagh) ............................................................................................................................................... 1141

Knowledge pills skills as a resource of Learning in Blended Learning (David Caballero Franco, Margarita Hernández Sánchez, Judith Martín Lucas, and Sara Serrate González) ........................................................................................................................................ 1151

Free Flowing Content: Unlocking the full potential for transitioning to e-learning at the institution scale (Andrew Knox Cass, and Mariia Kravchenko) ................................................................................................................................. 1161
Foreword

Welcome to the 18th biennial Conference of ISATT at the University of Salamanca, Spain. This year’s conference theme, “Teaching Search and Research,” will offer opportunities to reflect on diverse teaching contexts as well as on the challenges in educational research and practice. This is a timely and relevant topic as it clearly relates to the mission of ISATT: to promote, present, discuss and disseminate empirical research on teachers, teaching and teacher education.

Education is facing global and complex challenges and demands. The quality of teaching and learning at all levels of education remains a key issue for ISATT and it urges us to rethink current opportunities for students and teachers to learn and continue to develop within a lifelong perspective. This year, colleagues from all over the world will gather at this event and share knowledge and experience from various perspectives and contexts with the ultimate goal to improve education for all.

This conference includes a wide range of presentations from international scholars who are committed to the quality of education and who offer different lens through which teaching, learning and teacher education may be challenged including issues related to the development of knowledge and understanding of teaching practices; to social, problem-solving and pedagogical competencies; to engaging learning environments for sustainability of learning and teaching practices.; and to innovation and ICT.

As educators, teacher educators and researchers, we need to reflect upon the impact of our work at different levels, not only in terms of knowledge advancement but also in relation to the quality of education in a globalized and challenging world. It becomes more and more important to share experiences and ideas when complex, and sometimes contradictory, demands co-exist. It is, therefore, crucial to find ways and spaces for creative thinking and reflection about innovative practices for teaching and learning at all levels of education.

ISATT conference 2017 includes a wide variety of interesting keynote addresses, symposia, paper and poster sessions and workshops that will be an opportunity for all the participants to share ideas and enhance knowledge on the key themes of the conference. I encourage you to work collaboratively and to participate in the various dimensions of the conference. Your perspectives in the discussions, meetings and activities throughout the conference are appreciated.
The University of Salamanca is the gracious host of our conference. I would like to express my gratitude to Juanjo Mena and his team for their work and endless attention to the details of the conference. He has worked tirelessly with his local planning committee to bring this conference to fruition. The attractive venue, the wide range of topics included under the conference theme, as well as the social programme will ensure that your participation at ISATT conference 2017 will be most enjoyable, professionally rewarding and that you will return home with many memories to cherish. Also, find some time to experience a bit of Salamanca, a warm picturesque medieval town and UNESCO world heritage site, and its surrounding area.

I extend a warm welcome to all delegates participating in such an inspiring conference.

Maria Assunção Flores
Chair of ISATT
Preface

The present volume represents a compilation of international teacher education practice and research with a focus on Teacher Education for Contemporary Contexts. It draws upon the diverse educational perspectives, teaching procedures, knowledge, and situated contexts where the discipline takes shape.

The sections of this book comprise research papers accepted for presentation during the 18th International Study Association on Teachers and Teaching (ISATT) Biennial Conference that will take place from July 3rd to July 7th in Salamanca, Spain. Around 300 delegates from 57 countries across the globe and a large Scientific Committee of 80 colleagues have contributed academically and professionally to support our ability to share the contents of this volume.

The main conference topic is search and research. Searching is the action of looking carefully at people, objects, and situations in order to find something concealed or to discover something beyond the ordinary. This is what teachers do in their classrooms and, primarily, ‘search’ represents their endeavours to construct professional knowledge as a result of developing practice. Researching is systematic inquiry that intends to discover new knowledge and/or to refute educational theories, a process typically rendered by teacher educators and other researchers. The focus of this 18th biennial ISATT conference is to bring together both “search” and “research”, connecting practice and theory (or ‘praxis’), with the purpose of offering relevant solutions to realistic classroom problems.

The editorial process followed three differentiated phases: The first phase required abstract submission with the purpose of being accepted for the conference. A double (or triple) blind review was conducted to evaluate whether the papers submitted were suitable for the conference. A rate of 87% of the papers were accepted for presentation. The second phase encouraged authors to voluntarily submit a full paper of 3,000 words. A total of 111 full papers were then subjected to an open review process with the main purpose of suggesting to authors ways of further improving the presentation of their valuable research.

A third phase, not yet completed and therefore beyond the scope of this book, was the review and selection of the outstanding papers, papers that were
deemed eligible for the post-proceeding publication (i.e., less than 15% of the total).

The central intent of the book is to contribute to fostering scholarly discussions and to inform future teaching trajectories, strengthen lines of research in teacher education and demonstrate the opportunities and constraints in our professional work. Its added value highlights the commonplace in international research that serves to depict how the field of teacher education is moving forward in an increasingly global society.

All in all, teachers, teacher educators and researchers learn by effective communication processes, whether in personal/professional interactions or in the use of digital technologies. Positive interactions lead to building strong communities of learners, which in turn, leads to the production of valuable knowledge and better understandings about learning and teaching.

With the upcoming commemoration of its 800th anniversary in the year 2018, the University of Salamanca, as the oldest university in operation in Spain, is proud to host the ISATT 18th biennial conference and to support the exceptional work of many researchers in the field of Teacher Education by compiling and editing the work in this volume.

Furthermore, the local Organizing Committee and the ISATT Executive Committee hope you will experience a rewarding intellectual experience as a result of your contributions and knowledge, as both academics and practitioners. Thank you very much for providing us this exciting opportunity to work with you. We warmly welcome you to Salamanca – a truly historic and a contemporary context!

Juanjo Mena & Susan E. Elliott-Johns
Conference Chair and ISATT Secretary
We would like to acknowledge all the participants who have made possible the organization and execution of the 18th version of the ISATT. Likewise, we would like to thank all the contributors who brought this book to fruition, most notably to the members of the editorial review panel who kindly review the full papers of this publication, sharing their knowledge and time. Here we present a list of their names, nationalities and the institutions they belong to.

<table>
<thead>
<tr>
<th>Americas</th>
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<tbody>
<tr>
<td><strong>Brazil</strong></td>
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<td>Bacciotti-Moreira, Tiago</td>
<td>Universidade de Uberaba</td>
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<td>Ferreira, Diego Jorge</td>
<td>University of São Paulo</td>
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<td>Fortunato, Ivan</td>
<td>IFSP Brasil</td>
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<td>Marcondes, Maria Inês</td>
<td>Pontificia Universidade Católica do Rio de Janeiro</td>
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<td>Prata-Linhas, Martha</td>
<td>Federal University of Triangulo Mineiro - UFTM</td>
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<td><strong>Canada</strong></td>
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<td>Ciuffetelli Parker, Darlene</td>
<td>Brock University</td>
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<td>Clarke, Anthony</td>
<td>University of British Columbia</td>
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<td>Elliott-Johns, Susan E.</td>
<td>Nipissing University</td>
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<td>Fisher, Paige</td>
<td>Vancouver Island University</td>
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<tr>
<td>Harkins, Mary Jane</td>
<td>Mount Saint Vincent University</td>
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<td>Russell, Tom</td>
<td>Queen's University</td>
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<td>Nickel, Jodi</td>
<td>Mount Royal University</td>
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<td>Sibbald, Timothy</td>
<td>Nipissing University</td>
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<td><strong>Mexico</strong></td>
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<td>Cordero-Arroyo, Graciela</td>
<td>Universidad Autónoma de Baja California</td>
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<td>Glassereman Morales, Leonardo David</td>
<td>Tecnológico de Monterrey</td>
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Introduction.
Search and Research: Teacher Education for Contemporary Contexts

Juanjo Mena
University of Salamanca

Search and research may elicit diverse interpretations depending on the theoretical stance adopted. From a communicational perspective, both concepts refer to seeking information carefully, but semantic differences emerge when it comes to assessing the quantity and quality of that information. The digital era has brought an enormous amount of information that should be processed. Everything that we are looking for can be easily typed into the internet search engines on the web. The search results are vast. For instance, if we type in Google the term “Teacher Education” we will instantly get 28,700,000 results. This massive quantity of data offered for free must be subjected, however, to a careful process of scrutiny depending on the purpose of the search as not every source has an equal degree of credibility for the inquirer.

Research, on the other hand encompasses a systematic study of a knowledge domain, subjected to research methods with the ultimate purpose to find empirical evidence that support the research claims. Therefore, what basically distinguishes search from research is the quality of the knowledge generated, the latter being unquestionably considered more reliable and trustworthy.

From an educational point of view, we can add a different interpretation. Searching in the teaching profession might be understood as the action of finding something concealed, for instance finding new explanations for social behaviours, understanding personal beliefs, or becoming aware of multiple classroom dynamics. Teachers make sense at their day-to-day practice (i.e., students’ learning needs, responsive classroom dynamics, collaborative networks). Their ‘search’ represents the endeavours to construct professional knowledge, roles and identities out of what is commonly perceived as routine work. Researching, on the other hand is systematic teaching inquiry that intends to prove educational theories, or find new insights that helps to understand
practice, a process typically rendered by teacher educators and researchers but also performed by classroom teachers.

**BOOK SECTIONS**

The purpose of this book is to bring together both “search” and “research”, namely, connecting practice and theory to offer relevant solutions to realistic classroom problems.

The book has been divided into four sections reflecting the main themes of the conference.

– Part I. The development of knowledge and understanding of teaching practices.
– Part II. Teacher Education and competencies: social competencies, problem-solving competencies, and pedagogical competencies.
– Part III. Engaging learning environments for sustainability of learning and teaching practices.
– Part IV. Innovative practices and Information and Communication Technologies (ICT).

**THE DEVELOPMENT OF KNOWLEDGE AND UNDERSTANDING OF TEACHING PRACTICES**

The first part of the book brings together a series of studies that jointly subscribe that developing a coherent and solid corpus of knowledge for the teaching profession is essential to advance in the discipline. Furthermore, there is also a growing need to translate those evidence for practitioners, for example, a knowledge not only of practice but for practice (Cochran-Smith & Little, 2004).

Therefore, the different stages of teacher training (i.e., initial teacher education, induction and continuous professional development), the implementation of innovative teacher training programmes, and the role of teachers’ beliefs, attitudes, identity or agency come to the fore in this section.

**TEACHER EDUCATION AND COMPETENCIES: SOCIAL COMPETENCIES, PROBLEM-SOLVING COMPETENCIES, AND PEDAGOGICAL COMPETENCIES.**

The complexity of educational scenarios make it difficult to sort out straightforward solutions for the teaching profession. This implies that teachers and teacher educators need to constantly revisit their inner conceptions, theoretical and practical knowledge, and teaching skills. The teaching profession has been
always characterized by uncertainties so that teachers are expected to forge an “adaptative expertise”, that is to say, social, practical and pedagogical ways of dealing with the daily issues of practice by continuously adapting their goals to the changing contexts and pupils’ learning needs (Vogt & Rogalla, 2009). These three types of competencies: constructing satisfying and productive relationships between students and teachers (social competencies); solving unexpected events during the course of action (problem-solving competencies); and finding the ways to better explain the key concepts and procedures the class students’ need to assimilate (pedagogical competencies). Nonetheless, teachers’ competencies are delimited by social, cultural and political scenarios that define and constrain their actions (Putnam & Borko, 2000).

ENGAGING LEARNING ENVIRONMENTS FOR SUSTAINABILITY OF LEARNING AND TEACHING PRACTICES

Meaningful learning environments foster students’ critical thinking, creativity and questioning as well as they promote collaboration and team work. This sort of teaching environments sustains responsible teaching practices. Main characteristics of this type of learning contexts include the communication of high expectation to every student (Hollings & Oliver, 1999), the use of active methodologies (Heacox, 2002) or helping students to understand learning as inspiring and empowering (Ladson-Billings, 1995).

Therefore, part three includes chapters that revolve around the use of new methodologies such as Problem Based Learning, story-telling, the use of serious games and play (i.e., Lego materials) as well as the teaching networks and professional support that better guide both preservice and in-service teachers in their daily decision making processes (i.e., mentoring and coaching). All in all, the papers compile in part three intend to respond to the diversity of students’ needs and multiple schooling backgrounds.

INNOVATIVE PRACTICES AND ICT

The final section of this book delves into the use of Information and Communication Technologies in the classroom and the way teachers interact with and learn from them. Different modalities of teaching learning, such as online learning, e-learning and b-learning, teaching digital skills, or the use of new teaching resources (videogames, 3D objects and augmented reality, virtual labs, mobile apps, etc.) comes under close scrutiny along the pages of part four.
Technological resources have become essential items in today’s schools and ultimately have led to the reformulation of many teacher education programs worldwide (Sánchez, Mena, He & Pinto, 2013). Thus, new teaching abilities, knowledge and attitudes are increasingly required to foster digitally enriched classrooms (Hammond, Crosson, Fragkouli, Ingram, Johnston-Wilder, Johnston-Wilder, Kingston, Pope, & Wray, 2008).

In sum, this book draws upon the latest teacher education research and practices that depict how teaching is being studied in a wide variety of contexts and programs. The motivations and challenges to be and become a teacher are growing in complexity but they are also leading to gaining deeper and more precise understandings of what constitutes the teaching career.

References


PART I.

THE DEVELOPMENT OF KNOWLEDGE AND UNDERSTANDING OF TEACHING PRACTICES
The universe of supervision: an inclusive approach within the teacher training domain

Elsa Morgado¹, Mário Cardoso², João Rodrigues³, and Levi Silva⁴

¹Universidade de Trás-os-Montes e Alto Douro, Vila Real, Portugal; Centro de Estudos em Letras, CEL, Universidade de Trás-os-Montes e Alto Douro, Vila Real, Universidade de Évora, Évora, Portugal. Centro de Estudos Filosóficos e Humanísticos, CEFH, Universidade Católica Portuguesa, Braga, Portugal. levielsa@utad.pt
²Escola Superior de Educação, Instituto Politécnico de Bragança, Bragança, Portugal cardoso@ipb.pt
³Universidade de Trás-os-Montes e Alto Douro, Vila Real, Portugal; Centro de Estudos em Letras, CEL, Universidade de Trás-os-Montes e Alto Douro, Vila Real, Universidade de Évora, Évora, Portugal. jbarto@utad.pt
⁴Universidade de Trás-os-Montes e Alto Douro, Vila Real, Portugal; Centro de Estudos em Letras, CEL, Universidade de Trás-os-Montes e Alto Douro, Vila Real, Universidade de Évora, Évora, Portugal; Centro de Investigação em Ciência e Tecnologia das Artes, CITAR, Universidade Católica Portuguesa, Escola das Artes, Porto, Portugal levileon@utad.pt

ABSTRACT
Social and cultural transformations pose daily challenges to the educational field, particularly with regard to its objectives, functions, roles and the performance of those involved. This naturally leads to a need for (re)thinking the training of its professionals. The present study is integrated within this framework, developed with the aim of both assessing the quality of the inclusive approach in the supervision of teacher education, as well as creating proposals for future implementation based on the results, in order to eliminate or reduce gaps and weaknesses which may be detected. Based on these objectives, the research process was developed using a quantitative approach with the higher education public institutions of Trás-os-Montes and Alto Douro (Portugal), which include the Supervised Teaching Practice course (Teacher Training) in their curricula. The study included a total of 340 participants, divided into Student Interns (n=245), Teaching Supervisors of Higher Education Institutions (n=38) and Cooperating Teachers of the Home Institutions (n=57). Questionnaires were used as the data collection instrument for each group in the sample. The literature review and data analysis demonstrate the need for rethinking the form and content used in inclusive practices in the supervision of teaching education.
1. INTRODUCTION
In a society which refers to itself as inclusive, the education of learners with Special Educational Needs (SEN) is carried out partially in regular classes, under the slogan “a school for all” (Sassaki, 2010; Rodrigues, 2013; Morgado, 2014). This is an attempt to guarantee a type of education capable of going beyond the limits of a democratic society, making an effort to accommodate the differences of all its members (Vilela-Ribeiro, Benite, & Vilela, 2013). Our focus on this issue stems from our awareness of the depth and complexity of the long road that is still ahead of us, combined with the (still) blatant absence of training and sometimes lack of sensitivity towards SEN within the classroom by the various people involved in the school (MORGADO, 2014). The focus of this study is on the thoughts of intern students (IS), supervisors from higher education institutions (SHEI) and cooperating teachers from the higher education institutions (CTHEI) concerning their inclusive approach within the teacher training field. This study refers to the initial training phase of teachers and was developed with two public higher education institutions (HEI) in the North of Portugal (University of Trás-os-Montes and Alto Douro and Polytechnic Institute of Bragança). As such, the study included the fields of pedagogic supervision, special education and curriculum development, with an integrative and multidimensional perspective of both teacher training and teaching.

2. THEORETICAL FRAMEWORK
During the initial phase of training teachers, pedagogical practices play a key role in the problematization, planning, experimentation and coordination between theoretical and practical knowledge (Caires & Almeida, 2003; Alarcão & Tavares, 2013; Albuquerque, Silva, Resende, Gonçalves, & Gomes, 2015; Iza & Souza Neto, 2015). Pedagogical practices can be said to be at the center of training (Vonk, 1985; Morgado, 2014; Benites, Sarti & Souza Neto, 2015), as they are essential components of the curriculum and the profession (Formosinho, 2009). They provide contact with the reality and the multidimensionality of the teaching profession, as well as the applicability of the acquired/consolidated knowledge and practices of their initial training (Feiman-Nemser & Buchmann, 1987; Caires & Almeida, 2003; Cyrino & Sousa Neto, 2015). With regards to integration and inclusion, this training process plays a key role in helping teachers with the needs and challenges of a learner with SEN (Sassaki, 2010; Correia, 2013; Correia; Serrano, 2013; Morgado, 2014). However, despite the global perspective found in relation to respecting
and protecting students, in reality it is difficult to “think in an innovative manner with the conceptual frameworks and the words which are currently available to us” (Rodrigues, 2013, p. 79). All educational activity and the entire teaching-learning process will only be effective when we understand that “we are not only training professionals; we are creating a profession” (Nóvoa, 2014, p. 24).

3. METHODOLOGY.
This study uses a quantitative approach (ex post facto), by means of a survey administered via a closed-question questionnaire (via Google Drive). The data were later analysed using SPSS 22.0. The questionnaire was administered to 340 participants (SHEI [n=38]; CTHI [n=57]; SI [n=245]) of 26 courses in the 2013-14 academic year.

4. RESULTS.
The analysis of the data (see Tables 1 and 2) shows that the teaching staff surveyed (SHEI 52,6% [n=20]; CTHI 47,4% [n=27]) have relevant experience as supervisors; however, they show a clear lack of specific training in Special Education (SHEI 81,6% [n=31]; CTHI 68,4% [n=39]).

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Table 1: Academic qualification

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<td>Total</td>
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Table 2: Professional Experience

On the other hand, the IS (Table 3) are practically unanimous concerning this topic, not due to their training, but to their interest in the specific field instead. (IS 95,5% [n=234]).
Nevertheless, additional and extracurricular training were rarely taken into consideration in the HEI (Question 2: 35, 0% [n=119]) and these questions are only valued when confronted with real situations in the classroom (Question 4: 45,6% [n=155]). They deny that this happens (Question 5: 67,9% [n=231]), unless it concerns integration of learners with SEN in regular classes. In addition, a significant number of participants (Question 3: 35,6% [n=121]) claim the HEI never provided any training related to writing dissertations. The participants consider the course units (CU) of introduction to teaching practice - ITP (Table 4) as preparatory or propaedeutic (Question 1: 82,9% [n=282]), so that they can be exposed to and use some of these strategies and techniques in inclusive classrooms (Question 9: 55,9% [n=190]).

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<td>Whenever Necessary</td>
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<td>22,9%</td>
<td>0,9%</td>
<td>0,9%</td>
</tr>
<tr>
<td>Q12</td>
<td>Yes</td>
<td>No</td>
<td>Maybe</td>
<td>Don’t Know</td>
<td>No Answer</td>
</tr>
</tbody>
</table>
Nonetheless, the participants consider that the theme of inclusion (Question 8: 40,0% [n=136]) is rarely taken into account in the preparation, planning and monitoring of supervised lessons, perhaps due to what they answer in questions 6 (91,5% [n=311]) and 7 (87,9% [n=299]), where they indicate certain gaps in the specialized training of their supervising professors, which could be partially resolved with additional CUs in this area for training teachers and supervisors (Question 10: 59,7% [n=203]). The overwhelming majority of participants think it is important to have a basic coursebook (Question 11: 72,9% [n=248]), implying that currently there is not enough support on the topic (Question 12: 45,9% [n=156]). Finally, nearly half of the participants do not consider themselves to be personally or professionally prepared to work with learners who have SEN (Question 13: 45,6% [n=155]). In general (Table 5), the participants state they have had direct contact with learners with moderate learning difficulties (Question 16: 18,2% [n=62]) and that an action based on inclusive strategies can have a significantly broader, more decisive and satisfactory role (Question 17: 61,5% [n=209]). However, they believe that learners with SEN should follow their own/adapted curriculum (Question 14: 57,9% [n=197]) with a learner-centred perspective (Question 15: 91,5% [n=311]).

<table>
<thead>
<tr>
<th>Q13</th>
<th>Yes</th>
<th>No</th>
<th>Maybe</th>
<th>Don’t Know</th>
<th>No Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>20,0</td>
<td>45,9</td>
<td>21,8%</td>
<td>10,6%</td>
<td>1,8%</td>
</tr>
</tbody>
</table>

Table 4: SEN and STP (Part 1)
5. IMPLICATIONS/DISCUSSION.
Based on our observations, there seems to be a need for significant changes (on a personal, professional, and institutional level) which should be implemented as soon as possible by those with the power to do so. At the level of curriculum and academic training (institutional level), the current curriculum must be adjusted/altered in order to include required CUs related to SEN, as well as Multicultural Education, in which the issues of inclusion and exclusion are addressed in depth. The HEI should organize more events to promote awareness of issues related to SEN among the entire educational community (including SHEI, CTHEI and SI). Also at the institutional level, the HEI should develop specific rules so that the teaching staff which promotes, prepares, monitors and evaluates the Internship (and related seminars) can also become specialized in the field of Special Education. At the personal level, the staff involved in internships with SEN (the interns and their students), who do not have special training in this field (as seen in this study), should actively search for training on their own initiative (or institutional requirement). A voluntary and well-intentioned practice should not ignore training and monitoring specially directed towards those with SEN.

6. CONCLUSIONS
The results of the present study cause us to reflect on ways to provide improvement in the quality of activities and training related to special education, of which the following are highlighted: (1) developing a broad outline for professional competencies which might enable each teacher to act within a multidimensional educational context; (2) constructing a facilitating professional culture, with an integrative and inclusive curricular approach; (3) promoting formative and didactic perspectives which may (re)configure the connection and exchange between subjects, creating new opportunities for discussion and new training perspectives. To sum up, in order to better deal with the complexity of our times, it is crucial that the school be capable of refreshing its outlook on reality, by promoting a more inclusive approach towards pedagogy, demanding certain values and not foregoing anyone.
REFERENCES


# THE UNIVERSE OF SUPERVISION: AN INCLUSIVE APPROACH WITHIN THE TEACHER TRAINING DOMAIN

## APPENDICES

### Questionnaire

<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do you consider the course units (of the Bachelor’s) of IPP (Context Observations, Institutions and Educational Activities; Observation Methods and Techniques; Planning and Evaluation, etc.) to be extremely important in preparing the interns for their Internship (STP) in their current course (Post-graduate – Master’s)?</td>
</tr>
<tr>
<td>2</td>
<td>Did your higher education institution provide accredited or non-accredited extracurricular training (seminars, lectures, training sessions, etc.) about STP (Internships) and / or about inclusion/Exclusion in education in general?</td>
</tr>
<tr>
<td>3</td>
<td>Did your higher education institution provide accredited or non-accredited extracurricular training (seminars, lectures, training sessions, etc.) about how to write a dissertation to be defended in public, which is a required component of the (Internship)?</td>
</tr>
<tr>
<td>4</td>
<td>Do you believe supervising professors, cooperating staff and interns only value the issue of inclusion when confronted with a real situation in the classroom?</td>
</tr>
<tr>
<td>5</td>
<td>In your opinion, is the issue of Inclusion in the classroom only related to integrating learners with SEN into regular classes?</td>
</tr>
<tr>
<td>6</td>
<td>Do you think the supervising professor, cooperating teacher and intern can benefit from a broader type of training in the field of special education, so that they may better address situations in the classroom which require this type of training?</td>
</tr>
<tr>
<td>7</td>
<td>Do you think it is advantageous to have a supervisor or cooperating teacher with training in the field of Special education when training intern students, especially for promoting awareness to inclusion?</td>
</tr>
<tr>
<td>8</td>
<td>How often is the issue if Inclusion/Exclusion discussed (CTHEI and SHEI) during preparation, planning and teaching of the interns’ lessons?</td>
</tr>
<tr>
<td>9</td>
<td>Do you know and use any strategy and technique which might be applied in an inclusive classroom?</td>
</tr>
<tr>
<td>10</td>
<td>Do you think that the curriculum (higher education) for teacher training (Teaching Qualification) includes sufficient curricular units to prepare a future teacher to observe, evaluate and intervene (as part of the internship) in an inclusive manner?</td>
</tr>
<tr>
<td>11</td>
<td>Do you think a manual for simple diagnostics, planning and monitoring would help prepare teaching staff to fulfil their duties more effectively when it terms of inclusion?</td>
</tr>
<tr>
<td>12</td>
<td>Do you believe there is enough material that is up-to-date to assist with lesson planning with a more integrative and inclusive approach?</td>
</tr>
<tr>
<td>13</td>
<td>Do you feel personally and professionally prepared to help learners with SEN?</td>
</tr>
<tr>
<td>14</td>
<td>In your opinion, how should learners with SEN be integrated?</td>
</tr>
<tr>
<td>15</td>
<td>In your opinion, which of the following options should a school take when there are learners with SEN?</td>
</tr>
<tr>
<td>16</td>
<td>In the classroom, have you ever had contact with any learners with the following SEN (choose only the most significant situation):</td>
</tr>
<tr>
<td>17</td>
<td>If you consider Inclusion to go beyond learners with SEN, in which of the following situations (choose only the most significant one) do you think an Inclusive strategy might have a decisive and positive outcome:</td>
</tr>
</tbody>
</table>
Learning to be Practitioner Inquirers and Researchers: Lessons from a Teacher Education Program

Meher Rizvi

The Aga Khan University
meher5@hotmail.com

ABSTRACT
The need for teachers to have a clearer understanding of how beliefs and teaching practices impact classroom processes has globally been gaining momentum. To this end, teacher education institutions worldwide have been investing heavily on teacher education programs which aim to develop teachers as effective classroom researchers and reflective practitioners. It has generally been observed that in higher education settings preoccupation with the methodological rigor of research sometimes overshadows the enthusiasm and the zeal which gives life to real inquiry. This paper reports a practical blend of search and research in a teacher education program aiming to develop teachers as change agents who are actively engaged in school improvement initiatives in Pakistan. Data, reported in this paper, have been distilled from careful analysis of teachers’ reflections, personal observations and course evaluations. The findings suggest that for teachers to become passionate searchers and researchers, they need a program of studies which focuses on planned collaborative research exercises, opportunities for practicing theories in the real field based on the principles of ethics and commitment, authentic and interactive engagement of teachers in the various research facets through the process of continuous reflection, helping teachers discover their passion and research interests through continuous dialogue and feedback, and innovative tasks which assist teachers make sense of stories and realities from the field. In conclusion, I argue the need for a contextually relevant and highly stimulating methodological thinking approach which enables teachers to be rigorous researchers as well as passionate inquirers.

KEYWORDS: planned collaboration, practicing theory, continuous reflection, innovative tasks, ongoing feedback.

1. INTRODUCTION
It all began in 2012, when I was asked to teach a course on educational research to the Course Participants (the students who enroll in any course are called Course Participants - CPs) enrolled in the Masters of Education (MEd) program, which is an in-service teacher education degree in my university in Pakistan. The key question before me was how to innovate with the course design. I did not wish to do anything which was creative, but detached from the CPs’ realities. The detached nature of the research course, offered in the
past, was a matter of concern for the CPs as well. I could hear CPs’ voices echoing in my mind, “We learn about the different research techniques and methodologies, but we do not really understand what they actually mean.” Course participants’ concern combined with my own quest for developing a course which was methodological rigorous as well meaningful for the CPs led me to the question of “Can the search for meaning in real educational issues be combined with the methodological rigor of research processes required to be acquired in a research methods course?”

2: THEORETICAL FRAMEWORK

Hopkins’ (2001) model of school improvement and Day’s (2009) conceptions of passion for teaching came to my aid when planning a conceptual base for my course. Placing MEd CPs’ learning outcomes in the centre of the framework, I began to develop learning opportunities. The key task before me now was to fulfill the methodological rigor of the course as well as maintain CPs’ enthusiasm and zeal for educational inquiry. It may sound cliché or repetitive in an advanced world context, but in a country like Pakistan where research methodologies are generally being taught in a simplified and technical manner as prerequisites of writing technically sound dissertations with no or very little room for facilitating the love for inquiry among the CPs, it was important to bring together both “search” and “research” to answer real problems. I wanted to use research processes in my class which were methodologically rigorous helping CPs achieve the task of writing dissertation (a major requirement of the University) as well as understand and appreciate the application of research in real life situations. In this way, developing teachers as practitioner inquirers (Babione, 2014), who are continuously in search for more relevant and practical pedagogies.

The framework of my course as shown in Figure 1, therefore, suggests that CPs require a programme of studies comprising five key learning experiences. These are collaboration (Fullan, 1997; Hargreaves, 1997), practicing theories (Loseke, 2017), reflection (Loughran & Hamilton, 2016), dialogue and feedback (Griffin, Armitage, Parker, & Hugman, 2016) and relevant tasks (Craig & Orland-Barak, 2015). At the time of designing the course, I was not sure how I was going to integrate activities to achieve the learning outcomes, but I was determined to give it a try.
3. METHODOLOGY
In this section, I provide class composition and the techniques used to generate data for analysis.

3.1 Class composition
To date, I have taught five courses on educational research. In all, 102 Masters of Education (MEd) CPs have completed the course with me in the last 5 years (approximately equal number of CPs in each class) from 2012 to 2016. The CPs mainly comprised classroom teachers and school principals. In each course, I divided the CPs in groups of four to five. Groups were formed on the principles of mixed ability, mixed geographical locations, mixed gender and mixed fields of CPs’ specialization and candidature (part-time and full-time). Each of the five courses comprised 16 weeks of 3 to 4 face to face hours in the class each week.

3.2 Data Generation Techniques
In order to evaluate the effectiveness of the approach I had been using in my class, 04 CPs from each of the five classes from 2012 to 2016 were invited to write reflections on the processes used in the class. In this way, 20 CPs participated in the evaluation. Data for this paper have emerged from the analysis of the CPs’ reflections.
4. RESULTS.
Results are presented under the five key learning approaches used in the course. Informed by the data, the titles are modified to make them more accurate representation of the learning processes as they occurred in the real situation.

4.1 Planned Collaboration
What started as contrived collegiality achieved by forming groups in the class, turned to friendly collegiality achieved by frequent meetings and joint completion of tasks. Not all group members gelled in at the same pace of time. They gradually learnt to respect the diversity of opinions and critical feedback received from colleagues. This was achieved in a planned manner by using two strategies. These are: forming carefully designed diverse groups, and designing and undertaking research in groups.
In this way, male and female CPs from different cities of Pakistan and teacher education specialization worked together to complete research tasks, which I set for them. This obviously involved critical reflection and reaching consensus after focused discussion. In the words of two CPs:

We were divided into groups which suddenly took me back to my past where teachers used group work to kill time. I also considered group activities a nice way to kill time, but group work in our research course changed my perceptions. I found the class livelier and learning oriented. The groups were made on long-term basis and continued from research question development to conduction of the research in the real field.

Working in a group was also a nice experience. I learned a lot from my colleagues. They asked questions and challenged our understanding. Questions made me think more deeply and take help from literature as well.

4.2 Practicing Theories
Field based component was an integral part of the course. Based on the principles of practitioner inquiry (Babione, 2014), the field based was strategically aligned with the theoretical knowledge acquired in the course. The part-time CPs, who were fulltime working teachers in schools, played instrumental roles in this regard. They shared background information about the school systems where they worked, so that their colleagues (rest of the group members) could design a small pilot research suited to the contextual realities of the schools. The CPs achieved this task in coordination with school authorities respecting ethical norms and fulfilling all field based commitments in a timely manner. The theoretical abstract research notions of research question feasibility and do-ability of research questions, trustworthiness of data collected, confidentiality of the participants, validity of data reported,
participant and non-participant observation and conducting authentic research became real. In this way, we were able to demonstrate how an otherwise theoretical and tedious research course can come alive and enhance learning which is meaningful for the CPs (Loseke, 2017). The comments of two CPs substantiate this finding.

The strategy of using theory and practice together in the course can be best explained as ‘professional learning in the real situation.’ The course helped us to become proactive in our own learning and provided us an opportunity to implement the concepts that were learnt in the theory session. Conversely, if the participants were not engaged in the practicing the concept, they would not have been able to see the implication of the theory in the real context.

4.3 Continuous Reflection

The CPs engaged in reflection at two levels – individually and collaboratively with each other as well as with the wider community. The way the course was designed, it helped CPs view research based knowledge as problematic rather than accumulation of given facts, requiring CPs to critically analyse the texts and question their own biases and assumptions in search for meaning. In this way, they came to appreciate the real meaning of “process” in research. The conduct of research was a moral craft rather than a technical task, where the CPs carefully analysed situations, events and contexts to decide upon the most valid and ethical course of action in searching for answers to their questions. The CPs learnt about research with open-mindedness, willing to consider different perspectives, as well as with wholeheartedness, ready to identify and examine the limitations in their assumptions and worldviews. Here is an interesting example of a CP reflecting on the process.

As I moved through the research process, I continually thought about issues pertaining to the nature, scope, challenges and limitations of the study. The voyage to discover myself as researcher was quite an experience for me. Who am I as researcher? What interests me the most? Am I positivist or constructivist? What are the burning issues? What contribution can I make as a researcher? The first few classes boggled my mind with these questions and many more which kept on lingering on my mind halfway through the course until I discovered myself more as a constructivist than a positivist.

4.4 Relevant and Innovative Tasks

The reflections came alive because of innovative tasks. Course participants were expected to complete certain reading tasks individually before the class. The purpose of the readings was to engage CPs in comprehending and critically analyzing the texts and raise questions for class discussions. The questions were discussed in the class, enabling CPs to reflect upon various ideas and reach a new level of understanding. In addition, the CPs completed
carefully designed written tasks in their groups. These tasks required CPs to revisit ideas discussed in the class and develop a consensus with respect to various research related issues so that they could develop a collective response to the questions in the tasks, as this CP highlighted.

Be it a conceptual framework or research questions, literature review or interview protocol; every single component of research was done practically in class with the unconditional support of our course facilitator. These all processes involve a good deal of deliberation, readings, investigation and discussion within my small facilitative group in particular and with the whole class in general through a ‘ritual’ as I call it; a customary practice carried out by our course facilitator, where she used a multimedia to demonstrate the work done and giving feedback, identifying, analyzing and at times correcting them on the spot.

4.5 Continuous Evaluation, Dialogue and Feedback

Continuous evaluation, dialogue and feedback were probably the most crucial of all the learning processes. The course without feedback would have been like a body without soul. The CPs always completed their tasks for each class on time because they were assured of receiving regular and timely feedback. The CPs shared the tasks with me using an online mean, such as email, Google drive or moodle. I evaluated their work and shared the feedback online before the next class. The feedback was also discussed in the class. On the one hand, the dialogue and feedback kept CPs interest and passion in searching for answers alive, on the other hand it also facilitated CPs’ scaffolding into research rigor. As the two CPs highlighted.

My teacher adopted a thorough role of scaffolding. At the time of devising the research question, we were constantly struggling and at one instance, I wondered why my teacher would not just tell us what the correct research question for us was rather than give us the feedback and encourage us to work and rework. But, I realised that the feedback made us more anxious to strive for the appropriate research question that addresses our intentions to know.

During this whole process, we received feedback from the teacher in three ways. Firstly, she gave us written feedback during the whole process of research development. Secondly, the teacher sat with us in our group and gave us feedback. Thirdly and most importantly, she discussed each part of the research work in a whole class discussion through power point presentation.

5. IMPLICATIONS/DISCUSSION.

In 2016, I completed the fifth offering of the course on research. The course offerings and findings from data analysis have taught me important lessons, which have implications for theory and practice.
5.1 Theoretical Implications

What started as a disjointed set of ideas as shown in Figure 1 had taken an elaborative shape by the end of five years, clearly demonstrating the relationships among the various learning experiences, as shown in the modified framework in Figure 2. Collaboration forms the first layer in my framework because the evidence collected over a number of years has demonstrated that the CPs need to be acquainted with the work ethics and procedures from the outset, so that they are accustomed to the collaborative procedures by the time they reach the course conclusion. Further, the data suggest that for collaboration to be successful, it must be carefully planned. The second layer in the circle illustrates that the collaborative exercises need to extend outside classroom to encompass opportunities for practicing theories in the real field, based on the principles of ethics and commitment. It is authentic and interactive engagement of CPs in the various research facets through the process of continuous reflection that helps CPs appreciate the real meaning of research, which is not separate from search. Continuous reflection, therefore, forms the third layer of framework. Reflection finds its home in the fourth and the fifth layers, which can help CPs make sense of stories and realities from the field, search for meaning and discover their passion through innovative tasks and continuous dialogue and feedback (Craig & Orland-Barak, 2015; Griffin, Armitage, Parker, & Hugman, 2016; Loughran & Hamilton, 2016). Emerging from literature and experience, the modified framework offers helpful insights to the teacher educators from the similar contexts for combining search and research in the same course.
5.2 Practical Implications
Implicit in the findings are meaningful implications for the teachers and teacher educators. I will elaborate on the key implications.

a) Finding a balance – the success of the integrated teaching and learning approach will largely depend on finding a balance between theory and practice. Findings have illustrated that where this balance was lost, challenges occurred. For example, the course did not have sufficient space to build-in a desirable amount of time for the practice of data analysis using SPSS. As a result, CPs faced difficulty in understanding and practicing SPSS. Similarly, CPs required a lot more practice in writing their review of literature than was provided for in the course.

b) Helping CPs find their niche – each CP in the course brings his or her own research interest and inclination. It is important for a course facilitator to first discover those interests and then nurture them.

c) Acquiring research knowledge and skill requires acquisition of certain attitudes and aptitudes – The constructivist and collaborative approach of designing and conducting research requires the development of certain attitudes and aptitude, such as scheduling and administering time, written and oral communication, problem solving, decision-making, interpersonal abilities, upholding moral values, creativity, and leadership.

6. CONCLUSIONS
Through this course, CPs came to appreciate the more living side of research which, without the specific procedures used in the course, would have become acquisition of knowledge for some technical purposes. Needless to say that offering a course of this depth and magnitude is full of challenges, but these can be overcome if the course facilitator has real insight into issues, capability to scrutinize procedures from unusual point of views, endurance, exceptional reminiscences, and the courage to resolve issues.

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REFERENCES


The added value of encouraging morally courageous behavior via initial teacher education—Insights from the Stories of Israeli Educators

Roni Reingold¹, and Lea Baratz²

¹ Achva Academic College
reingold@ACHVA.AC.IL

² Achva Academic College
lbaratz@netvision.net.il

ABSTRACT
Leader are people who perform morally courageous behavior. They are “standing up for their principles and speaking truth to power, often at considerable risk to themselves and those close to them” (White, 2015, p.2). Hence, as educational leaders, morally courageous teachers do not focus only on teaching compulsory knowledge.
Morally courageous behavior is of special significance in a democratic society (Halmburger, Baumert, & Schmitt, 2015). Israel defines itself as a democratic society. Nevertheless, findings of qualitative research reveal that the Israeli educational system is characterized by instructional price tags for teachers' morally courageous behavior.
Findings of qualitative research that was taken with Sixty-one educators expose a profound understanding of the concept of moral courage. Hence, the teachers' stories describing the instructional price tags, has reliability.
Since the Israeli Ministry of Education, encourage teachers to act in conformist manner, teacher education institutions should foster morally courageous behavior among future teachers. Dedicating an entire course or several segments of courses, to the issue of moral courage can help novice teachers become more aware of the experiences that they most likely will face at various points throughout their careers (Gu & Day, 2013).

KEYWORD: Moral courage, conformism, teacher education

1. INTRODUCTION
“To have integrity we need to figure out what’s right and be courageous enough to do it” (Duska, 2013, 22). Standing up for moral standards, values and beliefs, requires, many times, acting in the face of high risk or danger. This kind of morally courageous behavior is of special significance in a democratic society (Halmburger, Baumert, & Schmitt, 2015).
Israel defines itself as a democratic society, but its Ministry of Education has almost complete control in determining educational policy and educational practice in the country.
Israel’s 1953 National Education Act led to a situation in which the pre-academic education system in Israel is comprised of four separate sectors: state-funded secular education for the Jewish sector; state-funded religious education for the Jewish sector; state-funded education for the Arab sector; and an independent, although state-funded—education system for the Jewish ultra-Orthodox sector (Baratz, Reingold & Abuatzira, 2013). The smallest sector, the Jewish ultra-Orthodox, is independent and controls its agenda and curricula. In contrast, the Ministry succeeds in controlling the three other sectors. It controls the schools' curricula; approves textbooks; formulates the matriculation examinations; controls the teachers' initial education, teachers' authorization procedures, and teachers' continuing professional development.

The situation of the separate Arab education system is the most complex. The Arab education system is subject to a discriminatory separatism, i.e., exclusion, in addition to being under the control and supervision of the state (Jabareen & Agbarieh, 2011). Moreover, there is a required component of the curriculum in the Arab education system that focuses about Jewish religion and Jewish culture and history. In addition to a more marginal curriculum about Islam. Thus, throughout the years of the existence of the State of Israel, the Ministry of Education can encourage conformist behavior of teachers in alignment with its policies (Baratz, Reingold & Abuatzira, 2013). Hence, it is clear why moral courage of teachers in Israeli education system has an additional value, (Reingold, Baratz & Abuatzira, 2013).

2. THEORETICAL FRAMEWORK

Moral courage is the ability of individuals to overcome fear and stand up for their main values and ethical commitments (Lachman, 2007). Facing ethical issues often obliges us to take actions that entail inconvenience (Reingold, Baratz & Abuatzira, 2013), harm, or danger.

Miller (2000) defines moral courage as the willingness to take a stand in defense of principles or convictions even when others do not,. According to Kidder (2005), moral courage is the area in which three elements intersect: danger, principles, and endurance.

Moral courage behavior occurs when individuals resist authority, assume individual responsibility, or take other morally courageous stands, even if the face of social ostracism or other forms of censure or punishment (Simola, 2015). Thus, the issue of potential punishment has importance while discussing moral courage.

The issue of risk, which we identified as 'price tag', in our previous research (Baratz, Reingold & Abuatzira, 2013; Reingold, Baratz & Abuatzira, 2013) was referred as the main reason for Israeli teachers to avoid acting in moral courage manner.
Teachers’ moral courage means their willingness to protect their values publicly. In order to awaken their students’ awareness, teachers must have the desire and ability to discuss ethical issues (Klaassen, 2010). White (2015) claims that leaders are “individuals who act with moral courage do so for their own organization, for society, or for the world, exposing a truth that cannot be disputed. Acts of moral courage, through confrontation, resistance, and exposing truth and injustice” (p.1). If teachers spouse to be educational leaders in classes and schools, they must adapt positive attitudes towards moral courage behavior. It is a hard task for Israeli educators. The current study aimed to find are there essential differences between Israeli educators from different cultural groups in terms of their willingness to display morally courageous behavior.

3. METHODOLOGY
Sixty-one educators were interviewed for this qualitative study. The research population was composed of 17 teachers working in publicly-funded Jewish secular schools; 14 teachers working in publicly-funded Jewish religious schools; 10 principals working in publicly-funded Arab schools; 10 Arab teachers working in publicly-funded Arab schools, and 10 Arab teachers working in publicly-funded Jewish secular schools.

The participant teachers were chosen based on the researchers' professional acquaintance with them, or based on recommendations the researchers received from colleagues, who described these teachers as having some meaningful “say” in the field of educational. Therefore, these teachers were not chosen randomly and thus did not constitute a representative sample. The main research tool was the open narrative interview (Powell, Fisher, & Wright, 2005), in which the teachers were asked to tell a story or to describe a situation or experience that happened to them in the framework of their educational work, which in their opinion could shed light on elements of moral courage. The interviews consisted of a qualitative, 'self-defined narrative', in which the interviewees described a specific incident in their life story (Spektor- Marsel, 2011), which they viewed as a demonstration of courageous behavior during the teaching process.

Data analysis was performed using a two-stage coding system. Primary categories were identified and defined, by searching topics and themes that appeared repeatedly throughout the findings. At this stage, the data were reviewed sequentially, by each of the researchers separately. In the second stage, as described by Fontana & Frey (2005), the researchers jointly reviewed
the categories that they had identified separately, and then combined the categories and renamed them, so as to better reflect the contents.

4. RESULTS
The findings, from the qualitative analysis of the 61 Israeli educators’ self-defined narratives, are organized in two main sections: (a) Educators' understanding of the concept of moral courage and (b) The willingness of the educators from the different sectors to display morally courageous behavior. Hence, findings in this section are presented per the educators' ethnic population group.

4.1. Educators' Understanding of the Concept of Moral Courage
In general, we found that the interviewees' answers expressed a profound understanding of the concept of moral courage. Teachers defined the concept in ways that were compatible with the theoretical literature, as demonstrated in the following excerpted quotes: ‘in my opinion, that was moral courage: standing up for your truth, for your principles'; ‘honest behavior in front of the students, even if it is against the institution's expectations. . . To follow your own personal morality, even if it is not compatible with the morality of the majority'.
In addition, the interviewees were aware of the fact that morally courageous behavior might come at a price, determined either by the school management or by other stakeholders in the field of education: ‘To act in a way you would feel true to yourself, even though you know it might 'cost you'; ‘morally courageous behavior has its costs; this is how teachers and principal feel. . . My husband tried to shut me up, my friends tried to shut me up, because they knew I would pay a price.'

4.2. Conformity and Compliance as Moral Acts – The Jewish Religious Sector
The teachers working in publicly funded Jewish religious schools behave in a moral manner, and they considered the task of moral education as the core of their professional practice and norms of the religious state school system. ‘Because I teach in a religious institution, I do not feel at all that I should think twice before teaching the subject matter, since most of the subject matter is consistent with my worldview'.

4.3. Performing a Morally Courageous Act While Knowing the Risk – The Jewish Secular Sector
Teachers working in publicly funded Jewish secular schools described morally courageous behavior's that challenged them:
4.4. Confronting the management/institution

'I confronted the headmaster and the teachers told me that it was not a wise thing to do'; ‘I promised a pupil that if he would improve in his studies, I would give him a prize. The principal did not like the connection and said ‘no’… but I persisted.’

4.5. Planning the lesson and choosing the learning materials that challenged the curriculum.

'I chose a book in which the Nakba is mentioned. There was much noise in the media about it and pressure was exerted on the school. The headmaster called me and I had to explain my reasons for choosing the textbook. The book was excluded from the school curriculum. We do not teach this subject.'

4.6. Confronting parents:

'Personally, I encountered a student whose parents abused her and the other teachers buried their head in the sand. I helped her to get out of her home, took her to a youth promotion office (an agency of the Ministry of Education). Her father threatened me and said, ‘You are either with me, or you're going to hell’, and I said it's my duty to help her. Friends advised me to leave this issue alone. They said, ‘you'll get in trouble’ – and I insisted.'

4.7. Avoidance of Morally Courageous Behaviors -- Arab Teachers in the Arab Educational Sector

None of the 10 Arab teachers in Arab schools claimed to behave in a morally courageous manner. Three described moments of hesitation before deciding to avoid such a behavior, five were constantly afraid of acting in this manner, and two openly opposed such behavior. ‘I teach what I have to teach. This means that I teach what is determined by the syllabus. So, I was never in a situation of conflict in terms of teaching content’; ‘if a teacher were to discuss some issues that are not commonly acceptable, she might do things against the cultural legacy. It would be irresponsible of her' ;I prefer to keep my job and to preserve the image my colleagues have of me, and so I know that for that I have to keep my mouth shut… this is something that is deeply rooted in our culture, and if I go against it, well it is like fighting against the culture .'

4.8 Courage --but not Always Moral Courage -- Arab Teachers in Secular Jewish State Schools

Arab teachers in secular Jewish state schools claimed: while teaching in Jewish schools they demonstrate courageous behavior. Never the less, in some cases, teachers' decisions were more a matter of chance: ‘I did not come here out of
idealism, I was simply accepted the offer to teach in a school where a teacher was needed.'
Nevertheless, these teachers described conflicting situations, both in school and in their communities. Hence, some demonstrated moral courage, others acted can be described as simply courageous, while others chose to act in a very conformist manner. 'I feel alienated. On the outside, no one would notice that I am Arab, the minute they find out – something changes’. This teacher emphasized this, by stating ‘I feel that I am playacting… I live in a kind of hypocrisy. I do what I do and nobody (the pupils) can tell how I feel.’

5. DISCUSSION

‘If your standards fit those of your school, then I wouldn’t worry’. This statement reflects the basic framework of the current paper. Teachers in the religious Jewish school sector attributed their involvement in moral education to their obligation and willingness to conform to the guidelines, values, and norms of the Jewish religious school system, rather than to a demonstration of moral courage on a personal level. By contrast, the behaviors reported by teachers from other educational sectors were more varied. Teachers' descriptions reflect their awareness of the difficulties of implementing their ethical and moral perceptions and beliefs when this conflict with the spirit of the educational institution in which they teach, with the general spirit of the educational sector, or even with the spirit of Israeli society in general. Thus, the price they are liable to pay for expressing opposition becomes a dominant issue.
The fact that teachers affiliated with the Jewish secular schools discussed the price exacted for morally courageous behaviors may indicate that the organizational system conveys to them –albeit in a covert manner– that in general it is opposed to change. However, given that the teachers participating in the current research were chosen because they were perceived to have a say in the educational field, only a few declared that they tend to avoid either taking a stance on moral issues or demonstrating morally courageous behaviors. The remaining majority described their behavior as morally courageous.
A different reality emerged regarding to the Arab schools, where the price to be paid for morally courageous behavior was conveyed through overt and explicit messages. For the most part, the Arab teachers in the publicly funded Arab schools were either afraid to demonstrate moral courage, or were openly opposed to such behaviors.
According to the findings, the choices made by the teachers from the different educational sectors differed in situations that involved danger, in these cases, a threat to their professional status. Under such threatening circumstances, these
educators were forced to choose whether to act on their personal principles or to yield to the dictates of the institution, authority, or society.

The current study has an added value in the Israeli context, where it should be the responsibility of teacher education institutions to integrate the development of moral courage as one of the professional objectives. This should be done in the framework of initial teacher education and accreditation, as well as in the framework of continuing professional development. However, it should be noted that the promotion or development of morally courageous behaviors among teachers is of essential importance not only in the Israeli context, but also in the international context, if one wants to introduce humanistic ethics and democratic civics into the schools.

In contrast to Israel, in other Democratic countries, schools enjoy more autonomy and teachers are provided with clear ethical guidelines; nonetheless, in cases in which certain moral behaviors constitute a clear risk, some teachers might not dare to adhere to their principles and values if these clash with those dictated by the social or the organizational environment. Hence, all over the world, teacher education institutions should foster morally courageous behavior among teachers. Dedicating an entire course or several segments of courses, such as philosophy of education or ethical education, to the issue of moral courage can help novice teachers become more aware of the experiences that they most likely will face at various points throughout their careers.

REFERENCES


THE ADDED VALUE OF ENCOURAGING MORALLY COURAGEOUS BEHAVIOR VIA INITIAL TEACHER EDUCATION - INSIGHTS FROM THE STORIES OF ISRAELI EDUCATORS


"Who can support me?": Studying teacher leadership in a Hong Kong primary school

Yuen-Shan Tse¹, Sally Wai-Yan Wan², Thomas Wing-Ki Lee³, Wing-Ki Tsang⁴, Vincent Kin-Chung Cheung⁵, Ylena Yan Wong⁶, Kelvin Shing-Pan Chong⁷, Zachary Hon-Fung Ng⁸, and Ada Wing-Tung Wan⁹

¹Faculty of Education, The Chinese University of Hong Kong
annctse@hotmail.com

²Faculty of Education, The Chinese University of Hong Kong
sallywywan@cuhk.edu.hk

³Faculty of Education, The Chinese University of Hong Kong
tenemtel@gmail.com

⁴Faculty of Education, The Chinese University of Hong Kong
tsangwinky350241@gmail.com

⁵Faculty of Education, The Chinese University of Hong Kong
vincentcke005@hotmail.com

⁶Faculty of Education, The Chinese University of Hong Kong
imyanwong@gmail.com

⁷Faculty of Education, The Chinese University of Hong Kong
kelvin.chongbun@gmail.com

⁸Faculty of Education, The Chinese University of Hong Kong
zachary232@live.hk

⁹Faculty of Education, The Chinese University of Hong Kong
wan.wing.tung@gmail.com

ABSTRACT
Teacher leadership (TL) is one of the essential factors to curriculum implementation. Curriculum development is never an easy task to teachers. Few studies indicated that TL led to school improvement and fostered student achievement and engagement in learning. However, most of the studies focused on inquiring TL in the western contexts while how this concept is perceived and experienced is ignorant. It is thus the aim of the study to explore how TL is taken place in a “East meets West” context - Hong Kong. This study used a case study of a local primary school. Data collection methods included teacher survey, individual interviews with teachers, as well as teacher shadowing. Social network analysis, together with content analysis of data as collected from the interviews and fieldnotes of 1-day teacher shadowing, was used to explore how teachers enact TL in the school. Implications for curriculum implementation and TL development are discussed at the end of the paper.
KEYWORDS: teacher leadership (TL); social network analysis (SNA); pedagogical practice; curriculum development.

1. BACKGROUND OF STUDY

TL is found to be one of the essential factors that support curriculum development and implementation in schools. Various studies indicated that TL facilitate and foster school improvement and enable student achievement and engagement in learning (Sigurðardóttir & Sigþórsson, 2016). Meanwhile, TL likely has positive impacts on organizational and teacher efficacy (Angelle & Teague, 2014). Over the past decades, TL studies were carried out to investigate teachers’ perceptions and practices of TL in different school contexts (e.g., Heikka, Halttunen, & Waniganayake, 2016; Sigurðardóttir & Sigþórsson, 2016). TL studies were mostly conducted in the western countries, such as Canada, UK, USA, and so on. Recent attention has been drawn to study TL in Asia (e.g., Law, Galton, & Wan, 2007).

2. TEACHER LEADERSHIP: DEFINITIONS AND DEVELOPMENT

There are no universal definitions about TL, which is usually associated with instructional leadership (Hallinger, 2005), transformational leadership (Bass, 1999), or distributed leadership (Spillane, Halverson, & Diamond, 2001). This remarks a paradigm shift in studying TL from sole, heroic, charismatic leadership roles and traits (Blasé & Blasé, 2000) to collaborative, collective practice of leadership in schools (Bolam et al., 2005). Recent studies investigated teachers’ social networks or social ties to the complex, dynamic inter-relationships and mutual influence amongst teachers (e.g., Trust, Krutka, & Carpenter, 2016).

3. TEACHER LEADERSHIP IN HONG KONG

Since 1990s, there has been a shift from centralization to decentralization of power from the principal to teachers (Dimmock, 2012, p.99), who are encouraged to participate in decision-making processes (Yeung, 2011). Before the mid-2000s, most TL studies in Hong Kong were about principalship, including principals’ behaviours, traits and styles, and encountered challenges (e.g., Cheng, 2000). Recent studies found that collective decision-making may not be easily practiced due to the cultures of hierarchy and seniority (Lo, Lai, & Chen, 2012). Local TL studies were conducted in different educational contexts, including early childhood education (e.g., Ho, 2012), primary education (e.g., Law et al., 2014), and secondary education (e.g., Lai & Cheung, 2013). This study aims to further explore teachers’ TL perceptions and peer
support, as well as how teachers provided assistance in curriculum development in a local primary school. Two research questions guided the study: (a) What are teachers’ TL perceptions and peer support?, and (b) How do teachers interact and give peer support to each in curriculum development?

4. RESEARCH METHODS
Using a mixed-method approach (Creswell, 2013), this case study applied a teacher survey and individual interviews with teachers (Yin, 2013) in a government-funded primary school which was established in 1995. This school was situated in a suburb area in the territory. This school is a co-educational school, with a total of 15 classes. There were a total of eight committees in school (Figure 1).

All the teachers in the school were first invited to complete a survey which was developed according to previous studies concerning TL (e.g., Bolam, et al., 2005), social capital (Hargreaves & Fullan, 2012) and social network analysis (Spillane, Halverson, & Diamond, 2001). A total of 32 teachers in the case school responded to the survey in this study (see Appendix 2).

The researchers approached five teachers who showed consent in the survey. Only two of them were able to participate in the interviews (Appendix 3), which were carried out in late May and early June 2016 respectively. The purpose of the interview was to elicit views and understandings about TL and how teachers support each other in curriculum development processes.

Teacher shadowing was applied to obtain “site-centred” information that “gives added value to what is … entirely dependent on the participants’ verbal accounts” (Padgett, 2016, p.100). Approval of teacher shadowing was obtained from the shadowee, who was one of interviewees. The researchers negotiated with the shadowee what activities would be subjected to the shadowing method (Bryman & Bell, 2003). Two researchers acted as shadowers, who took fieldnotes regarding teachers’ communication. The shadowing was conducted in early June 2016.

Quantitative data from the survey were computed with the Statistical Programme for Social Sciences (SPSS). Principal Component Analysis (PCA) was done to summarize the inter-relationships amongst the variables accurately and concisely (Gorsuch, 1983) (Appendix 1a and 1b). The survey was of high internal consistency, i.e., >0.90 (Morgan et al., 2004). Descriptive analyses such as frequency counts, mean, and standard deviation were done. Based on the open-ended responses concerning the kind of support provided and the names of teachers who provided support, social network analysis (SNA) was applied to explore the teacher networks in providing peer support concerning curriculum development using the NodeXL software. SNA acts as a relevant
and useful tool to explore the complexities of teachers’ mutual influence, peer support and participatory efforts in social relations (Smith, Trygstad, & Hayes, 2016). Qualitative analysis was done to individual interview data and fieldnote data with a preset coding system in generating the key themes. All the datasets were compared and contrasted so as to generate and categorize emerging themes (Guest, MacQueen, & Namey, 2012).

Figure 1: School organization chart

5. FINDINGS AND DISCUSSION

5.1. Teachers’ perceptions of teacher leadership

*Individual level*

The overall mean score of teachers’ TL perceptions on individual level was 4.47 (SD=0.55) (Table 1). The highest mean score was Component 2 “Focus on learning” (M=4.64, SD=0.59). However, Component 4 “Commitment to
learning for all” only got a mean score of 4.33 (SD=0.73). This revealed that although teachers perceived that student learning was important, they did not realize that they could cater for individual needs of students. Component 3 “Teacher collaboration” got a mean score of 4.58 (SD=0.81), which was the second highest amongst the four components. However, Component 1 “Reflective dialogue” got a mean score of 4.18 (SD=0.78) only. This discrepancy between collaboration and reflection may reveal that teachers tended to work together but did not have orientations towards solving problems together for evidence-based practice.

Subject department level
The overall mean score of teachers’ TL perceptions on subject department level was lower than individual level, that is, M=4.24 (SD=0.59) (Table 2). In other words, TL is quite marginalized at the subject department level. Component C “Continuous improvement” obtained the highest mean score (M=4.44, SD=0.67). This was likely related to the school self-evaluation mechanism recommended by the government (EDB, 2016), requiring every school to set up “systematic and evidence-based” school self-evaluation (SSE). Component B “Data-driven practice” got the lowest mean score (M=4.11, SD=0.86). “Evidence-based” approach may be “impractical” at subject department level. Teacher T explained that, “We all have heavy workloads and tight teaching schedule. This is impossible to collect data and discuss about it slowly”. Observation data revealed that teachers’ daily routine works were fully packed. As described by Teacher T, one ordinary teacher’s work is more than “7-ups”, meaning that a teacher had to stand up and work for conducting lessons without any stops. This may explain why teachers’ TL perceptions on subject department level are lower than that of individual level due to lack of time and heavy workload. This finding is likely aligned with the other research findings that teachers rarely realized the use of research in informing daily practice due to contextual factors (e.g., insufficient time, heavy workload) (Wan, 2011, Wan & Wan, 2013).

The view upon shared leadership on subject department level was weaker than that of teacher collaboration on individual level. There might be insufficient conditions for expanding TL though the presence of official mechanism for promoting “contrived collegiality” (Hargreaves & Dawe, 1990) amongst colleagues, for example, the school had a formal peer observation, a within-timetable collaborative lesson planning period, and checking assignment marking in an appraisal system. This was evidenced in observation data, in which teachers’ interaction was restricted to “official” collaborative lesson planning period – five minutes.
Table 1: Teachers’ perceptions of teacher leadership (Individual level) (n=32)

<table>
<thead>
<tr>
<th>Perception</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall perceptions of teacher leadership (Individual level) (Cronbach’s Alpha=0.92, N=19)</td>
<td>4.47</td>
<td>0.59</td>
</tr>
<tr>
<td>Component 1: Reflective dialogue (Cronbach’s Alpha=0.91, N=5)</td>
<td>4.18</td>
<td>0.78</td>
</tr>
<tr>
<td>Q14 I rely on the teachers I work with in this school for professional guidance and support.</td>
<td>3.54</td>
<td>1.05</td>
</tr>
<tr>
<td>Q15 I have improved the way I teach as a result of collaborating with other teachers at my school.</td>
<td>4.16</td>
<td>0.81</td>
</tr>
<tr>
<td>Q16 I have positively influenced student learning by working together with other teachers at my school.</td>
<td>4.41</td>
<td>0.71</td>
</tr>
<tr>
<td>Q17 Professional development at my school engages me in collaborative reflection about my practice with other teachers.</td>
<td>4.16</td>
<td>0.88</td>
</tr>
<tr>
<td>Q18 I have opportunities to discuss issues directly related to teaching and learning with people in other roles such as principal, subject panels, grade coordinators, and so on.</td>
<td>4.31</td>
<td>1.03</td>
</tr>
<tr>
<td>Component 2: Focus on learning (Cronbach’s Alpha=0.88, N=7)</td>
<td>4.64</td>
<td>0.59</td>
</tr>
<tr>
<td>Q19 I take collective responsibility for student learning</td>
<td>4.97</td>
<td>0.74</td>
</tr>
<tr>
<td>Q20 I create conditions for students to feel the confidence to learn</td>
<td>4.86</td>
<td>0.66</td>
</tr>
<tr>
<td>Q21 I set learning targets for individual students.</td>
<td>4.91</td>
<td>0.78</td>
</tr>
<tr>
<td>Q22 I ensure students receive constructive feedback about their work.</td>
<td>4.66</td>
<td>0.75</td>
</tr>
<tr>
<td>Q23 I take responsibility for the learning of all students in the school.</td>
<td>4.56</td>
<td>1.01</td>
</tr>
<tr>
<td>Q24 I provide feedback to my colleagues about their classroom practice.</td>
<td>4.50</td>
<td>0.67</td>
</tr>
<tr>
<td>Q25 I collaborate with teachers from other schools to improve teaching and learning in my and their classrooms.</td>
<td>4.03</td>
<td>0.93</td>
</tr>
<tr>
<td>Component 3: Teacher collaboration (Cronbach’s Alpha=0.93, N=5)</td>
<td>4.58</td>
<td>0.81</td>
</tr>
<tr>
<td>Q26 I have time built into my regular school schedule to examine and improve my instructional practice with other teachers.</td>
<td>4.63</td>
<td>0.98</td>
</tr>
<tr>
<td>Q27 I regularly examine student work in collaboration with other teachers.</td>
<td>4.53</td>
<td>0.80</td>
</tr>
<tr>
<td>Q28 I work with other teachers to look into the reasons for differences in student achievement across classes.</td>
<td>4.44</td>
<td>0.80</td>
</tr>
<tr>
<td>Q29 I am provided with opportunities to observe other colleagues teaching.</td>
<td>4.66</td>
<td>1.04</td>
</tr>
<tr>
<td>Q30 I share and try out new teaching methods with my colleagues to enhance student learning.</td>
<td>4.63</td>
<td>0.94</td>
</tr>
<tr>
<td>Component 4: Commitment to learning for all (Cronbach’s Alpha=0.98, N=2)</td>
<td>4.33</td>
<td>0.73</td>
</tr>
<tr>
<td>Q31 I regularly monitor the learning and progress of individual students.</td>
<td>4.78</td>
<td>0.66</td>
</tr>
<tr>
<td>Q32 In this school, we have high expectations for the learning of all students.</td>
<td>3.88</td>
<td>0.98</td>
</tr>
</tbody>
</table>

Table 2: Teacher perceptions of teacher leadership (Subject department level) (n=32)

<table>
<thead>
<tr>
<th>Perception</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall perceptions of teacher leadership (Subject department level) (Cronbach’s Alpha=0.54, N=15)</td>
<td>4.24</td>
<td>0.59</td>
</tr>
<tr>
<td>Component A: Shared leadership (Cronbach’s Alpha=0.54, N=10)</td>
<td>4.21</td>
<td>0.64</td>
</tr>
<tr>
<td>Q33 Teachers share with one another their reflections about their learning.</td>
<td>4.09</td>
<td>1.00</td>
</tr>
<tr>
<td>Q34 Teachers share with one another what they have learnt from the professional development activities they attended.</td>
<td>4.00</td>
<td>0.93</td>
</tr>
<tr>
<td>Q35 Teachers can carry out decisions and plans designed for school-wide improvement.</td>
<td>4.03</td>
<td>0.97</td>
</tr>
<tr>
<td>Q36 Teachers are actively collaborating in finding ways to improve the school as a whole.</td>
<td>4.19</td>
<td>0.97</td>
</tr>
<tr>
<td>Q37 The principal responds to the concerns and ideas of teachers.</td>
<td>4.50</td>
<td>1.02</td>
</tr>
<tr>
<td>Q38 Teachers have opportunities to influence important decisions even if they do not hold an official leadership position.</td>
<td>4.03</td>
<td>0.90</td>
</tr>
<tr>
<td>Q39 Teachers exhibit a unified effort to embed change into the culture of the school.</td>
<td>4.03</td>
<td>0.91</td>
</tr>
<tr>
<td>Q40 Subject departments share responsibility and rewards for innovative efforts.</td>
<td>4.10</td>
<td>0.83</td>
</tr>
<tr>
<td>Q41 Subject departments share power and authority with teachers.</td>
<td>4.09</td>
<td>0.73</td>
</tr>
<tr>
<td>Q42 Decision-making takes place through communication across level or/and subject departments.</td>
<td>4.19</td>
<td>0.74</td>
</tr>
<tr>
<td>Component B: Data-driven practice (Cronbach’s Alpha=0.86, N=3)</td>
<td>4.11</td>
<td>0.86</td>
</tr>
<tr>
<td>Q43 Teachers share with one another their evidence-based approach to improve practice.</td>
<td>3.94</td>
<td>0.95</td>
</tr>
<tr>
<td>Q44 Teachers share with one another how they actively seek and use feedback from pupils.</td>
<td>4.19</td>
<td>0.93</td>
</tr>
<tr>
<td>Q45 Teachers share with one another how they experiment and innovate in their teaching practice.</td>
<td>4.22</td>
<td>0.97</td>
</tr>
<tr>
<td>Component C: Continuous improvement (Cronbach’s Alpha=0.87, N=2)</td>
<td>4.44</td>
<td>0.67</td>
</tr>
<tr>
<td>Q46 Subject departments incorporate advice from teachers in decision-making.</td>
<td>4.50</td>
<td>0.72</td>
</tr>
<tr>
<td>Q47 Subject departments are proactive in addressing areas that need attention.</td>
<td>4.58</td>
<td>0.71</td>
</tr>
</tbody>
</table>
5.2. Teachers’ peer support in curriculum development

Table 3 showed in-degree and out-degree teacher interactions (Hansen, Shneiderman, & Smith, 2010). The relations between teachers were scarcely distributed (Figure 2). Teachers usually sought help from the panel head, the head of curriculum development or the principal who were all literally the seniority in the school. This clearly showed that teachers did not often help with each other but usually attempted to seek help from positional leaders.

<table>
<thead>
<tr>
<th>Vertex</th>
<th>In degree</th>
<th>Out Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher_5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>K</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Teacher_13</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Chinese panel</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>L</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Director (Committee Chair) of General Affairs</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Teacher_27</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Principal</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Teacher_28</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Teacher_29</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>English Panel</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>English Vice Panel</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>T</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>W</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Vice Principal</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>PSMCD (Primary School mistress/mistress [Curriculum Development])</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3: In-degree and out-degree teacher interactions in peer support concerning curriculum development.

Figure 2: Teachers’ social network regarding help-seeking behaviours concerning curriculum development.
During the interview, Teacher T mentioned that she preferred finding the senior teachers for getting advice and seeking help.

“As a newcomer who joined the school for two years only, it’s the vice-principal who always takes care of us as there were 10 new teachers in the same period. Therefore we always go to the vice principal if we have questions. … Usually the questions are more general like the hints of lessons observation.” (Teacher T, May 31, 2016)

However, “leaders” (positional) tended to help and assist others but they did not receive help from others. In the interview, the vice-principal mentioned that she tended not to seek help.

“I cannot think of anyone who can help me. … I do not think that I will ask for help. It is natural to do only those stuffs that you are able to do so. If you cannot finish those work, just don’t bear those responsibilities. It is hard to ask for help as everyone has their own businesses to take care of. … Actually I don’t think there’s anybody here.” (Vice-principal, June 1, 2016)

The missing responses reflected that teachers might be reluctant in seeking help and had doubts upon the usefulness of peers’ help (Tables 4 and 5). Observation data evidenced that teachers’ peer network was weak. Teachers did not have any informal communication with each other. This may be related to the staff room setting where teachers sat in rows and were surrounded by partitions (Figure 3). Meanwhile, getting others’ help might not be always satisfied what was really needed. Teacher T expressed that,

“I would also seek help from the PSMCD [curriculum development officer] as he has this responsibility to give us help! Though he could not help much in fact, I think his support was sort of logistic arrangement and this is much better than the General Studies panel head. Because that panel head gave us nothing. There is no direction. He never gave us any resources or information to support us!” (Teacher T, May 31, 2016)

This reflected that whether teachers would seek help may depend on the quality of help offered, which can be driven by shared goals, depth of engagement in groups, social expectations, as well as the safety in the environment (Roussel, Elliot, & Feltman, 2011).
Table 4: Teachers’ perceptions of “what can be helped”

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes (%)</th>
<th>No (%)</th>
<th>Missing (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deepening your content knowledge</td>
<td>3.1%</td>
<td>3.1%</td>
<td>93.8%</td>
</tr>
<tr>
<td>Planning or selecting course content and materials</td>
<td>0%</td>
<td>6.3%</td>
<td>93.8%</td>
</tr>
<tr>
<td>Approaches for teaching content to students</td>
<td>3.1%</td>
<td>3.1%</td>
<td>93.8%</td>
</tr>
<tr>
<td>Strategies specially to cater to learner diversity</td>
<td>3.1%</td>
<td>3.1%</td>
<td>93.8%</td>
</tr>
<tr>
<td>Assessing students’ understanding of the subject</td>
<td>3.1%</td>
<td>3.1%</td>
<td>93.8%</td>
</tr>
<tr>
<td>Others</td>
<td>0%</td>
<td>6.3%</td>
<td>93.8%</td>
</tr>
</tbody>
</table>

Table 5: Teachers’ perceptions of the degree of influence and frequency of getting help

<table>
<thead>
<tr>
<th>Scale</th>
<th>How much did this influence you?</th>
<th>% (N)</th>
<th>How often do you seek advice, information from head/peer?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Not at all</td>
<td>3.1%</td>
<td>1 = never</td>
</tr>
<tr>
<td>2</td>
<td>Little influential</td>
<td>0%</td>
<td>2 = once or a few times a year</td>
</tr>
<tr>
<td>3</td>
<td>Somewhat influential</td>
<td>0%</td>
<td>3 = once or twice a month</td>
</tr>
<tr>
<td>4</td>
<td>Influential</td>
<td>3.1%</td>
<td>4 = several times a month</td>
</tr>
<tr>
<td>5</td>
<td>Very influential</td>
<td>0%</td>
<td>5 = Once or twice a week</td>
</tr>
<tr>
<td>6</td>
<td>Extremely influential</td>
<td>0%</td>
<td>6 = Several times a week</td>
</tr>
<tr>
<td>Missing</td>
<td>93.8% (30)</td>
<td></td>
<td>Missing</td>
</tr>
</tbody>
</table>

There was rare communication between the principal and teachers. Teacher T commented that, “Usually the principal stays inside the office room. He won’t come out unless something very important that he must have to handle.” This seemingly the principal was like “invisible and unobtrusive forms of control” (Heck, 1998, p.62) over the school. This may be related to the location of the principal’s office (i.e., on the ground floor) while teachers’ staff rooms were on the third floor.
6. IMPLICATIONS AND CONCLUSION

The study revealed teachers' TL perceptions and their social network in curriculum development. The study showed that teachers’ TL perceptions on individual level were stronger than that of subject department level. The teacher network in supporting curriculum development was weak, where more help was relatively sought from the positional leaders. There is an urgent need for rethinking and rebuilding the supportive conditions for teachers’ networks for the sake of TL development as follows: First, physical or emotional support from the top level management (i.e., the principal) can be given in establishing and developing TL. Second, there can be co-leaders in administrative teams, involving positional and non-positional leaders (Levine, 1981) to strengthen the roles of non-positional leaders in influencing others. Third, evidence-based approach for reflective dialogue can be further institutionalized into the school culture.

Limitations still exist in this study. Although the findings of this case study may not be generalizable to other specific contexts, the findings can help expand our understandings of TL is perceived and practiced in Hong Kong. There can be further considerations in enhancing the current study. First, more participants in the case school, including the principal, subject department heads and other teachers, can be invited for interviews and shadowing. Second, there can be a longitudinal study to the process of TL development in the case school, in which the complexities and interactions of teachers’ TL development can be continuously explored in a systematic way. Moreover, different types of schools can be invited for conducting case studies which allow for comparing and contrasting the similarities and differences of TL in practices.

REFERENCES


WHO CAN SUPPORT ME?: STUDYING TEACHER LEADERSHIP IN A HONG KONG PRIMARY SCHOOL


EDUCATION BUREAU (EDB) (2016). Performance Indicators for Hong Kong Schools. Hong Kong: EDB.


“WHO CAN SUPPORT ME?”: STUDYING TEACHER LEADERSHIP IN A HONG KONG PRIMARY SCHOOL


APPENDICES

Appendix 1: Principal Component Analysis of Teacher Perceptions of Teacher Leadership (Individual Level)

<table>
<thead>
<tr>
<th>Question</th>
<th>Component 1</th>
<th>Component 2</th>
<th>Component 3</th>
<th>Component 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q11 I take collective responsibility for student learning.</td>
<td>.167</td>
<td>.823</td>
<td>.196</td>
<td>.128</td>
</tr>
<tr>
<td>Q2 I create conditions for students to feel the confidence to learn.</td>
<td>-.012</td>
<td>.798</td>
<td>.329</td>
<td>.051</td>
</tr>
<tr>
<td>Q31 I set learning targets for individual students.</td>
<td>-.046</td>
<td>.648</td>
<td>.459</td>
<td>.137</td>
</tr>
<tr>
<td>Q41 I ensure students receive constructive feedback about their work.</td>
<td>-.115</td>
<td>.784</td>
<td>.296</td>
<td>.152</td>
</tr>
<tr>
<td>Q5 I regularly monitor the learning and progress of individual students.</td>
<td>.122</td>
<td>.539</td>
<td>.322</td>
<td>.723</td>
</tr>
<tr>
<td>Q6 In this school, we have high expectations for the learning of all students.</td>
<td>.184</td>
<td>.173</td>
<td>.181</td>
<td>.510</td>
</tr>
<tr>
<td>Q7 I take responsibility for the learning of all students in the school.</td>
<td>.177</td>
<td>.810</td>
<td>-.250</td>
<td>.334</td>
</tr>
<tr>
<td>Q8 I have time built into my regular school schedule to examine and improve my instructional practice with other teachers.</td>
<td>.482</td>
<td>.313</td>
<td>.082</td>
<td>.248</td>
</tr>
<tr>
<td>Q9 I regularly examine student work in collaboration with other teachers.</td>
<td>.445</td>
<td>.405</td>
<td>.592</td>
<td>.132</td>
</tr>
<tr>
<td>Q10 I work with other teachers to look into the reasons for differences in student achievement across classes.</td>
<td>.378</td>
<td>.372</td>
<td>.692</td>
<td>.204</td>
</tr>
<tr>
<td>Q11 I am provided with opportunities to observe other colleagues teaching.</td>
<td>.334</td>
<td>.052</td>
<td>.716</td>
<td>.251</td>
</tr>
<tr>
<td>Q12 I provide feedback to my colleagues about their classroom practice.</td>
<td>.012</td>
<td>.564</td>
<td>.468</td>
<td>.087</td>
</tr>
<tr>
<td>Q13 I share and try out new teaching methods with my colleagues to enhance student learning.</td>
<td>.274</td>
<td>.226</td>
<td>.534</td>
<td>.129</td>
</tr>
<tr>
<td>Q14 I rely on the teachers I work with in this school for professional guidance and support.</td>
<td>.743</td>
<td>.183</td>
<td>.263</td>
<td>.150</td>
</tr>
<tr>
<td>Q15 I have improved the way I teach as a result of collaborating with other teachers at my school.</td>
<td>.829</td>
<td>-.007</td>
<td>.261</td>
<td>.129</td>
</tr>
<tr>
<td>Q16 I have positively influenced student learning by working together with other teachers at my school.</td>
<td>.856</td>
<td>.060</td>
<td>-.089</td>
<td>.075</td>
</tr>
<tr>
<td>Q17 Professional development at my school engages me in collaborative reflection about my practice with other teachers.</td>
<td>.860</td>
<td>-.015</td>
<td>.389</td>
<td>-.034</td>
</tr>
<tr>
<td>Q18 I have opportunities to discuss issues directly related to teaching and learning with people in other roles such as principal, subject panels, grade coordinators, and so on.</td>
<td>.824</td>
<td>-.013</td>
<td>.309</td>
<td>.019</td>
</tr>
<tr>
<td>Q19 I collaborate with teachers from other schools to improve teaching and learning in my and their classrooms.</td>
<td>.351</td>
<td>.002</td>
<td>-.126</td>
<td>-.461</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization
Rotation converged in 7 iterations.
Appendix 1b. Principal Component Analysis of Teacher Perceptions of Teacher Leadership (Subject Department Level)

<table>
<thead>
<tr>
<th>Question</th>
<th>Component 1</th>
<th>Component 2</th>
<th>Component 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q20. Teachers share with one another their evidence-based approach to</td>
<td>.205</td>
<td>.737</td>
<td>.333</td>
</tr>
<tr>
<td>improve practice.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q21. Teachers share with one another how they actively seek and use</td>
<td>.304</td>
<td>.784</td>
<td>.197</td>
</tr>
<tr>
<td>feedback from pupils.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q22. Teachers share with one another how they experiment and innovate</td>
<td>.352</td>
<td>.847</td>
<td>.195</td>
</tr>
<tr>
<td>in their teaching practice.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q23. Teachers share with one another their reflections about their</td>
<td>.667</td>
<td>.523</td>
<td>-.235</td>
</tr>
<tr>
<td>learning.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q24. Teachers share with one another what they have learnt from the</td>
<td>.718</td>
<td>.322</td>
<td>-.061</td>
</tr>
<tr>
<td>professional development activities they attended.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q25. Teachers can carry out decisions and plans designed for school-wide</td>
<td>.684</td>
<td>.522</td>
<td>.078</td>
</tr>
<tr>
<td>improvement.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q26. Teachers are actively collaborating in finding ways to improve the</td>
<td>.799</td>
<td>.286</td>
<td>.155</td>
</tr>
<tr>
<td>school as a whole.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q27. The principal responds to the concerns and ideas of teachers.</td>
<td>.685</td>
<td>.366</td>
<td>.283</td>
</tr>
<tr>
<td>Q28. Teachers have opportunities to influence important decisions even if</td>
<td>.679</td>
<td>.400</td>
<td>.234</td>
</tr>
<tr>
<td>they do not hold an official leadership position.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q29. Teachers exhibit a unified effort to embed change into the culture</td>
<td>.532</td>
<td>.332</td>
<td>.055</td>
</tr>
<tr>
<td>of the school.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q30. Subject departments incorporate advice from teachers in decision-</td>
<td>.151</td>
<td>.215</td>
<td>.863</td>
</tr>
<tr>
<td>making.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q31. Subject departments are proactive in addressing areas that need</td>
<td>.160</td>
<td>.210</td>
<td>.880</td>
</tr>
<tr>
<td>attention.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q32. Subject departments share responsibility and rewards for innovative</td>
<td>.737</td>
<td>-.034</td>
<td>.412</td>
</tr>
<tr>
<td>efforts.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q33. Subject departments share power and authority with teachers.</td>
<td>.762</td>
<td>.137</td>
<td>.271</td>
</tr>
<tr>
<td>Q34. Decision-making takes place through communication across level or</td>
<td>.631</td>
<td>.340</td>
<td>.521</td>
</tr>
<tr>
<td>/and subject departments.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.  
Rotation converged in 6 iterations.
## Appendix 2: Item-Total Statistics

<table>
<thead>
<tr>
<th>part1q</th>
<th>Scale Mean of Item Deleted</th>
<th>Scale Variance of Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha of Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>part1q1</td>
<td>144.37</td>
<td>315.825</td>
<td>.546</td>
<td>.957</td>
</tr>
<tr>
<td>part1q2</td>
<td>144.47</td>
<td>318.395</td>
<td>.506</td>
<td>.957</td>
</tr>
<tr>
<td>part1q3</td>
<td>144.45</td>
<td>315.702</td>
<td>.519</td>
<td>.957</td>
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<tr>
<td>part1q4</td>
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<td>318.631</td>
<td>.428</td>
<td>.958</td>
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<tr>
<td>part1q5</td>
<td>144.57</td>
<td>317.633</td>
<td>.537</td>
<td>.957</td>
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<tr>
<td>part1q6</td>
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<td>314.809</td>
<td>.425</td>
<td>.958</td>
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<td>part1q7</td>
<td>144.70</td>
<td>321.045</td>
<td>.251</td>
<td>.960</td>
</tr>
<tr>
<td>part1q8</td>
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<td>302.562</td>
<td>.848</td>
<td>.955</td>
</tr>
<tr>
<td>part1q9</td>
<td>144.80</td>
<td>308.238</td>
<td>.722</td>
<td>.956</td>
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<td>308.231</td>
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<td>.956</td>
</tr>
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<td>301.575</td>
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<td>316.947</td>
<td>.551</td>
<td>.957</td>
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<tr>
<td>part1q13</td>
<td>144.65</td>
<td>308.595</td>
<td>.769</td>
<td>.956</td>
</tr>
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<td>part1q14</td>
<td>145.40</td>
<td>308.800</td>
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<td>.957</td>
</tr>
<tr>
<td>part1q15</td>
<td>145.40</td>
<td>311.582</td>
<td>.666</td>
<td>.957</td>
</tr>
<tr>
<td>part1q16</td>
<td>144.90</td>
<td>319.197</td>
<td>.457</td>
<td>.958</td>
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<td>part1q17</td>
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<td>308.464</td>
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<td>.956</td>
</tr>
<tr>
<td>part1q18</td>
<td>145.00</td>
<td>304.621</td>
<td>.750</td>
<td>.956</td>
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<tr>
<td>part1q19</td>
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<td>322.133</td>
<td>.248</td>
<td>.958</td>
</tr>
<tr>
<td>part2q1</td>
<td>145.37</td>
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<td>.687</td>
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<td>part2q2</td>
<td>145.10</td>
<td>307.266</td>
<td>.748</td>
<td>.956</td>
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<tr>
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<td>145.00</td>
<td>302.103</td>
<td>.785</td>
<td>.956</td>
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<td>145.13</td>
<td>310.671</td>
<td>.675</td>
<td>.956</td>
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<td>145.10</td>
<td>316.162</td>
<td>.625</td>
<td>.957</td>
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<td>145.27</td>
<td>308.616</td>
<td>.763</td>
<td>.956</td>
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<td>part2q7</td>
<td>145.07</td>
<td>309.857</td>
<td>.726</td>
<td>.956</td>
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<td>144.80</td>
<td>306.372</td>
<td>.719</td>
<td>.956</td>
</tr>
<tr>
<td>part2q9</td>
<td>145.33</td>
<td>308.506</td>
<td>.688</td>
<td>.956</td>
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<td>145.37</td>
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<td>part2q13</td>
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<td>part2q15</td>
<td>145.13</td>
<td>314.257</td>
<td>.620</td>
<td>.957</td>
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</tbody>
</table>
Appendix 3: Demographic information about survey respondents

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>% (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>15.6% (5)</td>
</tr>
<tr>
<td>Female</td>
<td>84.4% (27)</td>
</tr>
<tr>
<td>Highest academic qualification</td>
<td></td>
</tr>
<tr>
<td>Certificate/ Diploma</td>
<td>6.3% (2)</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>39.4% (19)</td>
</tr>
<tr>
<td>Master Degree</td>
<td>34.4% (11)</td>
</tr>
<tr>
<td>Professional training</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>100% (32)</td>
</tr>
<tr>
<td>No</td>
<td>0% (0)</td>
</tr>
<tr>
<td>Professional life phase</td>
<td></td>
</tr>
<tr>
<td>0-3</td>
<td>12.6% (4)</td>
</tr>
<tr>
<td>4-7</td>
<td>28.2% (9)</td>
</tr>
<tr>
<td>8-15</td>
<td>12.6% (4)</td>
</tr>
<tr>
<td>16-23</td>
<td>34.4% (11)</td>
</tr>
<tr>
<td>24-30</td>
<td>6.3% (2)</td>
</tr>
<tr>
<td>31+</td>
<td>5.1% (1)</td>
</tr>
</tbody>
</table>

Remarks: Professional life phase is based on year of teaching experience with reference to Day et al., 2006.

Appendix 4: Information about interviewees

<table>
<thead>
<tr>
<th>Teaching experience</th>
<th>Teacher T</th>
<th>Teacher C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>General Studies P4</td>
<td>English P5</td>
</tr>
<tr>
<td>Academic qualifications</td>
<td>Master of education</td>
<td>Master of education</td>
</tr>
<tr>
<td></td>
<td>Postgraduate diploma of education (PGDE)</td>
<td>Postgraduate diploma of education (PGDE)</td>
</tr>
<tr>
<td></td>
<td>Bachelor of Science (BSc)</td>
<td>Bachelor of arts</td>
</tr>
<tr>
<td>Roles</td>
<td>Class teacher</td>
<td>Team leader of Grade 4 General Studies</td>
</tr>
</tbody>
</table>
Partnerships and relationships to support student teacher’s self-regulated learning

Lyn McDonald

Faculty of Education and Social Work
University of Auckland, New Zealand
lmcdonald@auckland.ac.nz

ABSTRACT
The role the visiting lecturer plays in promoting and supporting student teacher learning on practicum is an important one in Initial Teacher Education (ITE). The practicum experience is a challenging and high stakes environment for student teachers, and it is essential they receive support from those with responsibility for assisting them in their learning, namely the visiting lecturer and associate teacher. A central argument of the paper, is that student teacher learning is not simply focussed on surviving the practicum and meeting set requirements, but in being challenged to acquire the skills of self-regulated learning and the development of adaptive expertise. What is also important is the creating and fostering of partnerships by visiting lecturers with schools, and relationships with associate teachers, working together for the promotion of student teacher learning on practicum.

KEYWORDS: self-regulation; practicum; visiting lecturer; partnerships; adaptive expertise; triadic/professional discussions; associate teacher

1. INTRODUCTION
One of the aims of Initial Teacher Education (ITE) is “the development of teachers who have the skills and dispositions to continually inquire into their own teaching practice” (Zeichner, 1987, p. 565) and the importance of student teachers learning the skills and behaviours of self-regulation is central to this process. The New Zealand Curriculum emphasises the importance of students within classrooms becoming reflective learners (Ministry of Education [MoE], 2007). In order for this process of reflection to occur, student teachers themselves need to be able to monitor and reflect on their own teaching and learning with support from visiting lecturers and associate teachers. In this way student teachers will then be able to “make the process and reasons for reflecting explicit” to the students they teach (Wilson & Wing, 1993, p. 2). The sharing of experiences and the joint exploration of beliefs about teaching and learning are important roles the visiting lecturer plays in supporting student teacher learning (Caires, Almedia, & Vieira, 2012).
Within a complementary partnership the visiting lecturer must recognise the knowledge, expertise and skills the associate teacher can bring to student teacher learning, while at the same time utilising their own complementary knowledge, expertise and skills in curriculum, knowledge of pedagogy and learning. The strength of such a relationship lies with each partner being able to build mutual respect and trust thought to be essential to the success of such partnerships (Crawford, Killingsworth, Roberts, & Hickmann, 2009). Student teachers’ learning is promoted through visiting lecturers and associate teachers, guiding them through conversations before and during practicum, particularly following observed teaching. During this process both parties (visiting lecturer and associate teacher), can act as “experts who notice features of situations and problems that escape the attention of novices” while assisting student teachers in reflecting on and self-regulating their own practice (Donovan, Bransford, & Pellegrino, 2008, p. 25). Truly collaborative partnerships and relationships (as described above) can create powerful places for student teachers and their learning (Darling-Hammond, 2006a).

In New Zealand, high quality relationships and partnerships between the ITE providers, schools and student teachers on practicum are considered to be critical (MoE, 2010). Furthermore, a workforce advisory report to the Minister of Education on a vision for the teaching profession, reported that these high quality relationships are perceived to be essential in the development of critical reflection and teaching, resulting in maximum benefit for all learners (MoE, 2010). The knowledge of teaching and learning which both visiting lecturers and associate teachers have, provides the foundation and context student teachers need to make conceptual changes in their beliefs about learning in the “unique context of teaching” (Wang & Odell, 2002, p. 489).

Ultimately in ITE it is important for student teachers to take responsibility for their own learning. Therefore, clearly implicit in the process of learning to teach for student teachers are self-regulatory skills and strategies, which should form a central tenet of the way self-regulation is promoted during the triadic/professional discussions with visiting lecturers and associate teachers. Schunk (1990) defined self-regulation as what happens when students activate and sustain cognitions, emotions and behaviours, which are systematically orientated toward the attainment of learning goals. This applies as much to student teachers as to student learners. Research on self-regulated learning (e.g., Zimmerman, 2002) states that effective self-regulated learning involves the following selective use of processes adapted to each learning task. The processes include setting proximal goals for oneself; adopting appropriate strategies and knowing what constitutes a successful performance to attain the goals; monitoring one’s performance and responding to feedback; restructuring the social context in line with the goals; managing one’s time effectively; self-
evaluating; attributing causation to results and adapting to future learning while managing both motivational and emotional aspects of learning (Zimmerman, 2002). Significantly, students’ levels of learning have been found to be based on whether or not these self-regulatory processes are present or absent (Schunk & Zimmerman, 1994).

In this paper I argue that the role of the visiting lecturer and associate teacher are important in supporting student teachers to acquire reflective and analytic skills, and making the processes and reasons for reflection explicit to student teachers in learning to teach. It is through the process of acquiring the skills of self-regulation, that student teachers can develop an awareness and knowledge of their own learning (Kremer-Hayon & Tillema, 1999). It has been argued that critical thinking and reflection are important aspects of self-regulated learning, in that they allow student teachers, with support from initial teacher educators, “to critique taken-for-granted assumptions, so they become more receptive to alternative ways of thinking and behaving” about their teaching and learning (Harrison & Lee, 2011, p. 201). Responding to feedback and constructive criticism about their teaching and learning progress, combined with the opportunity to critically reflect, provides student teachers with the opportunity for effective learning to occur (Eisner, 2002; Smith & Lev-Ari, 2005).

Partnerships between universities and schools are important in ITE but it is the nature of the partnership which is crucial for student teacher learning. The visiting lecturer plays an essential role by being a liaison person and establishing a relationship with both the school and associate teacher. Through this relationship the visiting lecturer and associate teacher are able to encourage and support the student teacher in their learning with a focus on self-regulation. It is also necessary for both the visiting lecturer and associate teacher to have the necessary expertise, content and pedagogical content knowledge to support student teachers and their learning.

2. THEORETICAL FRAMEWORK

Learning to teach is both complex and demanding, and support for student teachers from the visiting lecturer can be crucial in this process. In a framework entitled ‘Preparing teachers for a changing world: What teachers should learn and be able to do’ Darling-Hammond and Bransford (2005) proposed that teaching, as a profession, “should encompass knowledge of learners and how they learn and develop within a social context; teaching should encompass knowledge of subject matter and skills; and there should be an understanding of teaching in light of content and learners” (Darling-Hammond & Bransford 2005, p. 83). In addition teachers need to develop a set of dispositions “or habits of thinking and action – about teaching, children
and the role of the teacher” (Hammerness et al., 2005, p. 387). Teaching dispositions include the “disposition to reflect and to learn from practice” which Cochran-Smith and Lytle have termed “inquiry as stance” (1999, p. 250). Just how student teachers develop such requisite knowledge, skills and dispositions as a professional knowledge base and competence for teaching, is the subject of ongoing debate. This paper sought to investigate the specific role the university-based visiting lecturer plays in promoting and supporting student teacher learning as they work in a complementary partnership with the school-based associate teacher. I argue in this paper that key learning, such as the development of self-regulatory skills, are important strategies for student teachers to acquire for the promotion of their learning and in the development towards becoming a teacher.

3. METHODOLOGY

Interpretive, qualitative case study methodology was used to investigate the role the visiting lecturer played in student teacher learning and focussed intensively on the phenomenon of how student teacher learning is promoted during practicum. Seven visiting lecturers, 18 student teachers and 18 associate teachers participated in the research study from two different programmes at a Faculty of Education. Three leaders with responsibility for ITE also participated. Data collection involved semi-structured interviews, focus group interviews, the taping of initial practicum meetings and triadic/professional discussions during the practicum, together with written documentation. The sampling method was both purposive for the programmes, practicums, schools, student teachers, ITE leaders and associate teachers and convenience sampling for the visiting lecturers. Thematic analysis was used to analyse the data which sought to “identify concepts, patterns and themes in the data which can be deduced and/or induced from the data…” (Ezzy, 2002, p.88).

4. FINDINGS AND DISCUSSION

All seven visiting lecturers in this study described in their interviews how they perceived their role to be in building partnerships with schools. VL1 commented that the first thing she does when she arrives at a school is to visit the principal and have a conversation about the student teachers and their learning progress at that particular school. She stated that an important part of the visiting lecturer role is very much “tied up with the concept of partnership between the university and the schools” and reiterated the role is “about liaison and establishing and maintaining relationships”. VL1 also remarked that what is imperative for student teacher learning is to realise the importance of the learning at both practicum and university and the “meshing together of ideas from both sites”. She stated the visiting lecturer needs the capacity and ability in their role to make
“the relationship between the two [university and school] actually work”. It was important, VL1 concluded, that the partnership with schools and associate teachers be complementary to each other, as both are “partners in initial teacher education to support student teacher learning”.

VL1 stressed that it was also important for visiting lecturers to be aware of what was happening in schools in relation to learning and teaching:

It keeps us current and I think we do need to keep currency in our practice. As visiting lecturers, when student teachers return to university we need to make the links between what is happening in the schools in learning and our teaching courses.

VL7 emphasised the importance of visiting lecturers “knowing the school and having mutual respect for one another”. The notion of partnership between visiting lecturers and schools was evident when VL7 reflected on what she considered an important link between relationships and student teacher learning stating, “I believe the building of relationships with schools is a negotiated understanding with each party. We [the visiting lecturers] are the lynch pin in a partnership and relationship with schools to support student teacher learning”.

Similar to the viewpoints expressed by visiting lecturers in their interviews, the ITE programme leader and leaders from both the Graduate Diploma in Teaching (Primary) and the Bachelor of Education (Teaching) emphasised the importance of fostering and sustaining partnerships and relationships, with both schools and associate teachers. PL1 spoke of visiting lecturers building up a relationship with one practicum school and a cohort of associate teachers over a period of time as being more conducive to student teacher learning. She continued by saying the lecturers and associate teachers knew and supported one another, and the primary aim of both parties was the enhancement of student teacher learning. She spoke of the benefits for both the university and student teacher learning and of the partnership extending to “… not just a place for student teachers to practise, but actually the engagement, growing and developing of new teachers. So the whole thing is about learning, also a greater understanding of the school context”. PL1 continued, that a further advantage for student teachers is that both sets of knowledge are emphasised, “… the school knowledge and the university knowledge and it is the bringing together of both that is critical in the partnership”.

The research findings from the study this paper is based on indicated that the seven visiting lecturers enacted their role in student teacher learning on practicum very differently. Three of the seven visiting lecturers were highly effective in supporting and promoting the skills of self-regulation, while at the same time they created supportive partnerships with associate teachers for the
promotion of key strategies and behaviours. The other four visiting lecturers performed their role in varying and, at times, seemingly less effective ways. The effective visiting lecturers (in partnership with the associate teachers) created conditions of collaboration and support within the practicum environment that enabled the student teachers to develop the skills of self-regulated learning, and thus, I would argue, developed a foundation for becoming adaptive experts. One of the pivotal findings from the study emphasised the importance of the conversations that took place between the visiting lecturer, associate teacher and student teacher promoting self-regulatory practices. The effective visiting lecturers recognised and acknowledged the knowledge and contributions of associate teachers in the conversations in support of student teachers and their learning. For that reason, more attention has to be paid to visiting lecturers and associate teachers being supportive and inclusive of the role they play in the promotion of student teacher learning. Each of the two parties has a unique role to play, and both visiting lecturers and associate teachers should recognise what each party contributes to ITE and learn from each other (Timperley, 2001).

5. CONCLUSION

Research studies (e.g., Darling-Hammond, 2006a; Fayne, 2007) have emphasised the importance of student teachers taking responsibility for their own learning, by engaging in personal inquiry and reflection. The findings of the current research study indicated that promoting and supporting self-regulatory skills leading to the development of adaptive expertise, is an integral part of high quality student teacher learning. While there is a wealth of literature exploring the role of ITE and practicum experiences on student teacher learning, very few studies have examined the specific role of the visiting lecturer and associate teacher working together in a complementary partnership, focused on supporting student teachers learning the skills and behaviours of self-regulated learning. Given the paucity of literature in this area, a focus on the role the visiting lecturer plays in student teacher learning, supported by the associate teacher, add valuable insight for those in ITE.

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RELATIONSHIPS AND RELATIONS TO SUPPORT STUDENT TEACHER’S SELF-REGULATED LEARNING


Manifestation the levels of teachers professional agency: toward a conceptual framework

Khalil Gholami

University of Kurdistan
khalil.gholami@gmail.com

ABSTRACT
This paper is to address the nature of teacher professional agency in line with the socio-cultural context they teach in. Teachers professional agency may be described as the capacity of teachers to put force different pedagogical actions within the constrains and possibilities of the socio-cultural structures of their societies. Using a research synthesis and qualitative study, we studied the nature of teacher professional agency. In the first stage, we combined the results of major relevant studies and in the second stage, we interviewed 10 teachers in Kurdistan, Iran. The findings showed that teachers professional agency can be manifested in four ontological levels: passive, reflexive, constructive, and critical agency. We argue, however that these stages were not hierarchical.

KEYWORDS: teacher professional agency, teacher identity, social structure

1. INTRODUCTION
Teacher professional agency has been one of the most promising area of educational research in recent years (Biesta, Priestley, & Robinson, 2015; Buchanan, 2015a; Campbell, 2004; Coffman, 2015; Edwards, 2015; Hökkä & Vähäsantanen, 2014; Hökkä, Vähäsantanen, & Mahlakaarto, 2016; Kimber, Pillay, & Richards, 2002; Miller & Patrizio, 2015; Nguyen & Bui, 2016; Reynolds & Salters, 1998; Sannino, 2010; Tesar, Pupala, Kascak, & Arndt, 2016). Relying on the concept of agency rooted in social sciences (e.g., Archer, 2003; Biesta & Tedder, 2006; Giddens, 1991), teachers professional agency may be described as the capacity of teachers to exercise different pedagogical actions within the constrains and possibilities of socio-cultural structures of the schools and the societies they work in. In this sense, teachers as change agents are believed to "have the power to act, to affect matters, to make decisions and choices, and to take stances, for example, in relation to their work" (Vähäsantanen, 2015, p.2) Van der Heijden, Geldens, Beijaard, and Popeijus (2015, p.689) found that agentic teachers has characteristics such as "eagerness to learn, being reflective, accessible, positive, trustful, self-assured,
creative, innovative, and collaborative". It seems most of the research on teachers' professional agency embeds with a positive connotation, suggesting that while teachers practicing their agency, they suppose to make a difference in order to improve the quality of their profession. We argue that teacher professional agency is a multi-dimensional concepts and thus the current insights into teacher professional agency does not fully meet with the complexity of teacher professional and personal lives. So, the main purpose of this paper is to know how teachers exercise, their professional agency considering the socio-cultural context they teach in.

2. THEORETICAL FRAMEWORK

The concept of agency has its roots in social sciences (Archer, 2000, 2003; Emirbayer & Mische, 1998; Giddens, 1984). Theoretical speculation regarding the agency has its origin in a fundamental question: how socio-cultural structures and human agency interact? In his theory of structuration, Giddens (1984), argued that individuals may shape and reshape social structures while they practice their agencies. For Giddens it is important that individuals engage in different "intentional actions" that brings about "particular outcomes", that would not have happened if human intervention or agency was not present. Archer's realistic social theory also postulate human agency in different way (Archer, 2000, 2003). In this theory, human agency is understood in terms of embodied and practical realities that are formed by empowerment of self. As such, human agency is an "internal conversation" (Eteläpelto, Vähäsantanen, Hökkä, & Paloniemi, 2013) that shapes the interplays between society and individual. In ecological theory, human agency is also seen as a "temporally embedded process of social engagement, informed by the past, but also oriented toward the present (Emirbayer & Mische, 1998, p.963). Biesta and Tedder (2006, p.11) perceive "agency as the capacity of actors to critically shape their responses to problematic situations". Rather than seeing agency as residing in individuals as a property or capacity, this approach sees agency as an emergent phenomenon of the ecological conditions through which it is enacted" (Priestley, Biesta, & Robinson, 2012). Relational approach is another viewpoint in which professional agency is seen to be dependent on the particular situation as well as the social and personal resources at hand"(Pietarinen, Pyhältö, & Soini, 2016, p.3). These theories about human agency have provided us empirical tools for extending it to work place. In educational sciences, the concept of agency have had more currency for teachers' profession. Different studies (Buchanan, 2015b; Pietarinen et al., 2016; Vähäsantanen, 2015; van der Heijden et al., 2015) suggested that depending on the socio-cultural structure embedded in and around schools, teacher professional agency has different meaning and teachers may practice
their agencies in deterministic or autonomous ways. Therefore, in this research, we redefined teacher professional agency based on two basic dimensions: teachers' "conscious" actions and the "outcome" of the actions. Most of the research state that teacher professional agency is linked to the kind of teachers' actions that bring about positive and good changes. We argue this interpretation may not fully reflects the "lives of teachers". We define teacher agency as conscious actions, reactions, and intentions in a particular structure (with constrains and possibilities) with a temporal bearing ((Emirbayer & Mische, 1998) (connection to the past-present and future) that have different outcomes (good or bad). So, as far as teachers make conscious decisions, they act as "agents", and the outcomes of their decisions may not always be good, positive, or creative.

3. METHODOLOGY

Using a research synthesis and qualitative study, we studied the nature of teacher professional agency. In the first stage, we combined the results of major relevant studies to know how teacher professional agency is manifested in the current literature. In order to do so, we searched for appropriate papers in the most relevant academic databases. The key words such as teacher professional agency, professional agency and agency were used to find suitable papers. Considering the titles and abstracts of the papers, we selected 40 relevant papers based on the criterion that the paper should be empirical or theoretical dealing with either professional agency or teacher professional agency. Then, reading the abstracts of all papers, 20 papers were selected for the final analysis. These papers were selected based on two basic criteria: (1) addressing the concept or definition of professional agency and(2) addressing teacher professional agency. We did a thematic content analysis to explore the main themes that describe the concept of teacher professional agency. The results was a conceptual framework, dealing with four levels of teacher professional agency. In the second stage, we interviewed 10 teachers in Kurdistan, Iran to know how the empirical data may support our conceptual framework. The teachers were selected on a voluntary basis from different levels of schooling, including elementary and secondary high schools. The participants were 4 females (12-18 years of teaching) and 6 males (15 to 25 years of teaching). In this paper, we present the results of the first stage and some supportive ideas from the participants. We analyzed the interviews to see how they fit the conceptual framework identified from the literature review.
4. RESULTS

4.1. Levels of teacher professional agency.

The research synthesis of current literature and empirical data from our research showed that teacher professional agency has four levels, each calling for an ontological bearing.

4.1.1. Passive agency.

The first level of teacher agency proposed in this research is what we call as "passive agency". It suggests that teachers may suffer from "learned helplessness" (Carlson, Miller, Heth, Donahoe, & Neil, 2010, P.9), in the sense that they underestimate their capacities to make a difference when confronting the hegemony of the socio-cultural context and the polices that ignore their professional needs and interests (Coffman, 2015). The outcomes of teacher agency could be poor, normal or good. One of the participants stated:

when I came to this profession I was very interested and enthusiastic to improve my teaching skills. I would read and study a lot of books and papers before going to the classroom because I wanted to be ready....Now I found that no matter how good you are as a teacher. Nobody cares about you or appreciates your struggles to work with students. In addition, I got a lot of financial problems as a teacher; my income is not enough to settle my personal life and I have to look for the second source of income. Facing these challenges, I am no longer motivated to put extra work to make something good in the class. I just try to teach my simple tasks (male, 22 years of teaching).

4.1.2. Reflexive agency

A group of researchers has suggested that teachers practice their agencies in the form of active participation in their professional community so that they are able to understand, describe and reflect on the conditions of their contexts. (Collin, Sintonen, Paloniemi, & Auvinen, 2011; Hokka, Eteläpelto, & Rasku-Puttonen, 2012). In this level of agency, teachers deal with their immediate structures by assimilation (reflecting on the contingencies of the socio-cultural structures and to reform them) and adaptation (reflecting on the structure and to change their own stances in response to the structure). These teachers are practical and consciously and intelligently define their positions to the socio-cultural realities of the schools. The outcomes of this kind of agency could be in the form of psychological demonstrations such as active motivation, happiness, and improvement in teaching and learning or even wellbeing of the students (Lukacs, Horak, & Galluzzo, 2011; Welzel & Inglehart, 2010). One of the teachers believed:

My colleagues are very disappointed about the students we deal with...they argue that the new generation of students do not care about school and the academic
issues and we should close the eyes to their conditions and let them go wherever they want to...my experiences have taught me that I must always be hopeful and do something good. Let me tell you one example. One of my students was very poor and unmotivated...I discussed and worked with her a lot...now she is very happy and successful person...this kind of actions made me feel so happy (Female, 10 years of teaching).

4.1.3. Constructive agency.

In the most positive understanding of professional agency, constructive agency was found to be connected to the teachers' creative, innovative, and effective initiatives that may improve the quality of teaching (Collin et al., 2011; Toom, Pyhältö, & Rust, 2015). In such cases, teachers show high levels of enthusiasm, competency and capacity "to go above and beyond the perceived expectations of [their] roles" (Buchanan, 2015, p.710) and change the quality of their pedagogical actions and reactions. The outcomes of teacher professional agency is to bring about the new and creative ideas in the classroom or even the school context. One of the participants (12 years teaching) who was teaching in an elementary school showed this level of agency. All of the students extremely loved her because she went much more behind the very competitive-based curriculum of the school and put "playing and games" at the core of her classroom activities: she showed a lot of creative and unique pedagogical initiatives in her classroom.

4.1.4. Critical agency.

Practicing professional agency, is not only about the creativity. In many cases, self-empowerment and resistance against structural hegemony manifests the concept of professional agency (Eteläpelto et al., 2013). Critical agency was found to have two directions: positive and negative. In the positive orientation, teachers may practice their agency to resist the socio-cultural structure in order to overcome the power relationship embedded in their immediate contexts (Sannino, 2010). On the other hand, in the negative direction, the teachers practice their agencies while struggling against reforms and changes forced from other parties (Fenwick, 2006). One of the participants (28 years teaching) was very critical to religious subjects and activities in his school and he resisted against them. He argued that "I never teach these subjects; instead I teach the subjects such as sciences and do social and moral activities. I believe that these religious subjects and activities be very harmful to a healthy curriculum needed for my students".
5. DISCUSSION AND CONCLUSION

We found that teacher professional agency had four levels, considering the nature of interactions they showed regarding the structure: passive, reflexive, constructive, and critical. However, we do not consider theses stages to be hierarchical and teachers may exercise these levels of agency depending on the conditions and temporality of their workplace. We also admit that this analytical categorization is heuristic and needs to be supported by more empirical data. Analyzing the four levels of agency, we should argue that the scope of teachers' professional agency could be an spectrum (fig.1) in which they may move from a kind of "bounded" or autonomous toward a "deterministic agency" (Evans, 2002, 2007). The notion of “bounded agency” is an alternative to a more deterministic account of the agency (Eteläpelto et al., 2013) in which teachers may actively try to gain control of their professional lives.

REFERENCES


MANIFESTATION THE LEVELS OF TEACHERS PROFESSIONAL AGENCY: TOWARD A CONCEPTUAL FRAMEWORK


Perceived preparedness and teaching beliefs of differentiated instruction: From prospective teachers’ perspective

Sally Wai-Yan Wan

Faculty of Education, The Chinese University of Hong Kong
sallywywan@cuhk.edu.hk

ABSTRACT
Differentiated instruction has drawn attractions from the policymakers and educators in the Asia-Pacific regions, including Hong Kong, whereas Hong Kong’s recent curriculum reform, Learning to Learn, recommends schools and teachers to use differentiated instruction in classrooms. However, previous studies revealed that its implementation is not yet implanted in the real classroom practice owing to a gap between teaching beliefs and the principles of differentiated instruction, as well as teachers’ lack of training of the use of differentiated strategies. The idea of differentiated instruction was initiated in the western countries. Its implementation is still uncertain and insufficiently evidenced. Although teacher education is one of the keystones that affect curriculum implementation, there has been a lack of empirical studies investigating prospective teachers’ beliefs and needs concerning differentiated instruction in the Asian regions. It is thus the aim of this study to examine Hong Kong prospective teachers’ perceived preparedness and teaching beliefs upon differentiated instruction. In the study, prospective teachers were oriented towards differentiation but they were not completely ready for taking actions in differentiation. Despite recognizing the importance of understanding students’ characteristics and needs, prospective teachers did not hold high expectations upon students. They generally tended to be less prepared in using student-dependent approaches in differentiation. Discussion of the findings and implications for teacher education and research directions will be presented.

KEYWORDS: differentiated instruction (DI), prospective teachers, teaching beliefs, teacher preparedness, teacher education.

1. INTRODUCTION
There have been a long history of differentiated instruction, which was originated and advocated to close achievement gaps in students’ abilities in the public education system in the US in the 1970s (Weselby, 2017), where using differentiated instruction strategies were thus used to secure children with disabilities with equal access to public education. Differentiated instruction was further recommended in the No Child Left Behind curriculum policy in the US in the 2000s (US Department of Education, 2001) as it was recognized as the
most promising solution to catering for learner diversity in inclusive
environment (McTighe & Brown, 2005). Differentiated instruction has drawn
attractions from the policymakers and educators in the Asia-Pacific regions,
including Hong Kong. Hong Kong’s recent curriculum reform, Learning to
Learn, recommends schools and teachers to use Tomlinson’s (1999, 2014)’s
framework of differentiated instruction in Hong Kong schools, where inclusive
education has been set out for more than two decades.

“Since the 1970s, the Government of the Hong Kong Special Administrative
Region has been providing support for ordinary schools in catering for students
with special educational needs (SEN). From September 1997, we promoted the
Whole School Approach to Integrated Education as advocated by the United
Nations Educational, Scientific and Cultural Organization, to enhance the quality
of local integrated education.” (EDB, 2010, p. iv)

The two latest official guidelines, namely Operation Guide on the Whole
School Approach to Integrated Approach (EDB, 2010) and Catering for
Differences – Indicators for Inclusion (EDB, 2008) were launched in
supporting and reinforcing inclusive education in schools.
Two recent curriculum reform documents, Basic Education (EDB, 2014) and
Senior Secondary Education (EDB, 2009) further highlighted the importance
of catering for learner diversity in supporting inclusive education. In Basic
Education, EDB (2014) recommends schools that,

“To effectively cater for students with SEN, schools should create an inclusive
culture for students to understand and accept individual differences and develop
an attitude of mutual understanding, trust and respect. No matter whether the
students have SEN or not, they can benefit from growing healthily in a
harmonious atmosphere. For students with SEN, an inclusive culture can enhance
their learning motivation and confidence.” (p. 24)

For Senior Secondary Curriculum, EDB (2009) suggests that,

“Creating opportunities for able and disabled students to work together on
learning activities and to share life experiences in order to promote the inclusive
culture of students, teachers and parents, and to correct their misconceptions
about disabilities through real encounters” (p. 21)

Meanwhile, EDB (2014) also advocates the adoption of gifted education “to
fully cater for the diverse educational needs of the gifted students through an
inclusive approach” (p. 36). Nevertheless, inclusive education is still subject to
criticisms and dilemmas concerning inclusive education such as insufficient
teacher training, big class problems, and negative attitudes towards inclusion
Developing teachers is certainly an important issue in supporting the use of differentiated instruction in inclusive environment. One of the key dimensions of the Teacher Competencies Framework (ACTEQ, 2003) is “Students’ Diverse Needs in School”, which expects that teachers “[m]akes consistent efforts to identify students’ diverse needs, including special education needs; makes frequent attempts to adapt the curriculum and management strategies to suit students’ different levels of interest, abilities and needs” (p. 30). It is remarked that this is mandatory to “better prepare and equip teachers with the knowledge and skills in catering for students with SEN, local teacher education institutions have included a module on special education or catering for student diversity in all pre-service teacher training courses” (Legislative Council HKSAR, 2014) and in-service teacher training about SEN is also compulsory, while gifted education “is still in its early stage” (Wong, 2002, p. 166), in which there is no compulsory requirement for teacher training in gifted education (Tommis, 2012). In other words, catering for learner diversity in this inclusive environment may be potentially inclined to looking after SEN students. In other words, though differentiated instruction can be applied to all kinds of students, including SEN, gifted students, and ordinary students, its application may likely fall into SEN students.

2. DIFFERENTIATED INSTRUCTION: WHAT AND HOW?
Differentiated instruction (DI) generally refers to Tomlinson’s comprehensive framework or philosophy for effective teaching through organizing and structuring curriculum and teaching strategies in response to students’ diverse needs (i.e., learning profile, readiness and interest) in terms of contents, process, product and environment (Tomlinson, 1999, 2014; Tomlinson et al., 2003; Tomlinson & Allan, 2000). The National Curriculum Council (NCC) (1991) also has a similar definition of differentiated instruction, which is defined as “the process by which curriculum objectives, teaching methods, assessment methods, resources and learning activities are planned to cater for the needs of individual pupils”. Pre-assessment is an catalyst to differentiated instruction, where students are assessed their readiness, interests, and/or learning profiles (i.e., learning styles) so as to let teachers understand students’ needs and make curriculum decisions. In designing differentiated instructional strategies, there are four dimensions – content, process, product and environment. First of all, differentiation by content include the multiple ways to deliver contents such as varied texts, varied graphic organizers, independent study, tiered assignments, and so on, while taking into account “what the
students learn and the materials through which learning is accomplished” (Tomlinson, 1999, p. 11). This means the teaching of the content differently by modifying the levels of depth, complexity, and readability of the materials (Rock, Gregg, Ellis, & Gable, 2008). Secondly, when doing differentiation by process, teachers have to determine how the students get access to the information and what activities students can do to master the content such as learning stations, cubing, jigsaw readings, and so on. Thirdly, teachers can do differentiation by product through providing students with multiple ways to demonstrate what they have learnt, for example, presentation, quiz, models, and so on. Last but not the least, differentiation by environment helps meet students’ needs in the classroom atmosphere, including physical space (i.e., display boards with supportive reading materials) and emotional space (i.e., student-teacher behaviours and attitudes).

3. TEACHING BELIEFS, TEACHER PREPAREDNESS AND DIFFERENTIATED INSTRUCTION

As agents of curriculum change (Priestley, Edwards, Priestley, & Miller, 2012), teachers are “considered as insiders in the topic of inclusive education” and their teaching beliefs and perceptions “could be very influential to students” (Cheung, Wu, & Hui, 2015, p. 7). Teaching beliefs commonly refer to “tacit, often unconsciously held assumptions about students, classrooms, and the academic material to be taught” (Kagan, 1992, p. 65). Being one of the affective factors, teaching beliefs can significantly influence instructional decisions and determine how a task is defined and shaped into practice (Borg, 1999; Fang, 1996; Nespor, 1987). Teaching beliefs may affect attitudes and feelings towards curriculum change in a negative way when such change is incongruent with teaching beliefs (OECD, 2009; Pajares, 1992). However, there can be possibly inconsistencies between teaching beliefs and practice (Dole & Sinatra, 1998). As UNESCO (2004) elaborated that,

“It is important for the teachers to learn about their own understanding of diversity, their assumptions and beliefs, and to be aware of the impact caused by the culture of their schools on their behaviour towards students. Sometimes our assumptions do not reflect on the reality of the situation from a different standpoint.” (p. 39)

Aftab (2016) revealed the positive relationship between teaching beliefs about their intentions and stakeholders’ expectations to implement differentiated instruction, but they found the most hindering factor was lack of planning and instructional time in doing differentiation.
Different international studies were conducted to investigate pre-and in-service teachers’ perceptions and practices of differentiated instruction, including Belgium (Ruys, Defruyet, Rots, & Aelterman, 2013), Canada (Tobin & Tippett, 2014), China (Deng & Harris, 2008), Taiwan (Chien, 2012), USA (e.g., Brighton et al., 2005), Switzerland (Smit & Humpert, 2012), Turkey (Karadag & Yasar, 2010), Romania (Nicolae, 2013; Tulbure, 2011), and so on. These studies found that teachers were positive towards the application of differentiation but there were unfavourable conditions for its practice in reality, including teacher preparation, teacher workloads, and insufficient time for lesson preparation (e.g., Brighton et al., 2005; VanTassel-Baska & Stambaugh, 2005). Few studies indicated that teachers’ perceptions of their personal confidence and competency to teach (i.e., teaching efficacy) are driven by teaching beliefs (e.g., Prestridge, 2012; Richardson, 1996). However, little is known about what differentiated instruction strategies pre-service teachers are confident (Casey, 2011; Dee, 2010; Dixon, Yssel, McConnell, & Hardin, 2014), where pre-service teachers held lower expectations on students and lacked a deep understanding of differentiated instruction as well as classroom management skills. On the other hand, some local studies have been done to study preservice teachers’ attitudes towards inclusive education (e.g., Forlin, 2007) and catering for learner diversity (e.g., Berry, 2010). Similar to international literature, Hong Kong preservice teachers generally were positive towards inclusive education but they found it hard to deal with learner diversity due to classroom management, insufficient preparation and poor working conditions (i.e., heavy workload, tight teaching schedule). However, very few have covered pre-service teachers’ perceptions and preparedness in the area of differentiated instruction in the local context (e.g., Wan, 2016, 2017). It is thus worthwhile to get a better understanding of prospective teachers’ perceptions of differentiated instruction and their preparedness for using differentiated instruction in the local context in order to provide appropriate and relevant teacher education in facilitating their future use of differentiated instruction in general inclusive classrooms, and further contribute to expanding the current knowledge about how differentiated instruction is perceived in an Asian context. Two central research questions guided the study: (a) What are teachers’ perceptions of their own readiness for using differentiated instruction strategies?, and (b) What are teachers’ teaching beliefs upon differentiated instruction?
4. METHOD

4.1. Research settings and participants

The study was conducted in a government-funded university in Hong Kong. There were approximately 800 full-time undergraduate students taking education as major discipline of study. There are five different subject areas in the undergraduate teacher education programme as offered by the faculty of education in the university, including: Chinese language education, English language education, Mathematics education, Liberal studies education, and Sports and physical education. Two courses were offered for developing preservice teachers’ knowledge and skills in catering for learner diversity. One of them was a compulsory course about special educational needs (SEN) while another was an elective course about application of differentiated instruction strategies. The SEN course was a mandatory course in the undergraduate teacher education programme. Taking a convenience sample method, the participants for the study were invited from three compulsory courses in the area of curriculum studies during the academic year 2015-2016, which was taught by the researcher. It was noted that these participants did not take the abovementioned courses. A total of 88 prospective teachers participated in the study (see Table 1). The purpose of choosing these three groups in the study are twofold: first, this helps ensure a better understanding of preservice teachers’ “pure” status in the study area – differentiated instruction; second, this provides a more accurate “body check” of preservice teachers’ “readiness” level before and after any interventions (i.e., enrolling in SEN or differentiated instruction courses) and therefore this study can give rich and useful information in the teacher education course design, especially SEN course or differentiated instruction course.

4.2. Data collection

The survey was designed based on the previous literatures and empirical studies related to teaching beliefs and practices regarding inclusive education and differentiated instruction strategies (e.g., Casey, 2011; Gregory & Chapman, 2012; Joseph, 2013; Santangelo & Tomlinson, 2012; Scott & Spencer, 2006; Soodak, Podell, & Lehman, 1998; Wertheim & Leyser, 2002). There were three parts in the survey. Part 1 was designed to elicit participants’ teaching beliefs upon differentiated teaching (15 items) on a 6-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). Part 2 was used to explore prospective teachers’ perceptions of their own readiness for using differentiated instruction strategies. In Part 3, demographic information including gender, year of study, teaching practice experience, major of study, and involvement in courses related to learner diversity. Besides, ethical considerations were taken in conducting the survey. Consent forms were
collected from the participants before participating in the survey, who were informed of the purpose of the study and the confidentiality of the data and its usage.

4.3. Data analysis

Data analysis was carried out with the use of Statistical Package for the Social Sciences (SPSS), including frequencies, percentages, means, and standard deviations. Item reliability analysis was used to assess the quality of each item and verify that all the items are on a similar scale (DeVellis, 2003). All the items were found to be of good consistency ($r>0.80$) (see Table 3). However, two items (i.e., TB3 and TB15) had to be removed in the teaching beliefs scale (i.e., Part 1) as there was a corrected item-scale correlation of less than 0.30 (Nunnally & Bernstein, 1994) (see Tables 1 and 2). Inferential analysis such as ANOVA analysis and correlation analysis was also done to determine any significant differences and evaluate the relations amongst variable respectively (Leech, Barrett, & Morgan, 2005).

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB1. I can assist some students to learn with the use of carefully prepared prompts.</td>
<td>61.85</td>
<td>62.817</td>
<td>.469</td>
<td>.826</td>
</tr>
<tr>
<td>TB2. A student's comprehension of text will be dependent on activating prior knowledge.</td>
<td>61.80</td>
<td>61.521</td>
<td>.591</td>
<td>.818</td>
</tr>
<tr>
<td>TB3. If I allow some students to present assignments in a variety of ways, I may be giving some students an unfair disadvantage.</td>
<td>63.49</td>
<td>68.873</td>
<td>.127</td>
<td>.847</td>
</tr>
<tr>
<td>TB4. Students who have difficulty maintaining concentration and completing a task and therefore develop more effective routines.</td>
<td>62.27</td>
<td>63.787</td>
<td>.422</td>
<td>.829</td>
</tr>
<tr>
<td>TB5. When I help some students make links and build on previous knowledge, I am encouraging success in learning.</td>
<td>61.32</td>
<td>61.392</td>
<td>.661</td>
<td>.815</td>
</tr>
<tr>
<td>TB6. If I teach and visually display context specific vocabulary, students’ writing will be enhanced.</td>
<td>61.77</td>
<td>63.948</td>
<td>.460</td>
<td>.827</td>
</tr>
<tr>
<td>TB7. Prior to teaching a new skill, it is necessary to analyze a task and ascertain the knowledge and skills that are required.</td>
<td>61.59</td>
<td>64.130</td>
<td>.520</td>
<td>.824</td>
</tr>
<tr>
<td>TB8. Effective classroom management improves teaching and learning.</td>
<td>61.02</td>
<td>60.229</td>
<td>.676</td>
<td>.813</td>
</tr>
<tr>
<td>TB9. If I provide graphic organizers for</td>
<td>61.67</td>
<td>63.143</td>
<td>.536</td>
<td>.822</td>
</tr>
</tbody>
</table>
students to record their work, it will lead to better understanding of material.

| TB10. Cultural diversity among students will lead to different interpretations of the same text. | 61.59 | 63.210 | .534 | .823 |
| TB11. By posing different questions, I can test understanding at various levels. | 61.39 | 61.826 | .588 | .819 |
| TB12. All students can learn, given an appropriate educational environment. | 61.36 | 60.947 | .647 | .815 |
| TB13. All students can be successful in my class. | 61.93 | 63.926 | .416 | .830 |
| TB14. I can ensure that all students experience success by adapting the curriculum. | 62.37 | 64.237 | .363 | .833 |
| TB15. Students with learning difficulties hold back students who are not impaired. | 63.02 | 71.011 | .007 | .853 |

Table 1: Item-total statistics of teaching beliefs upon differentiated instruction.
<table>
<thead>
<tr>
<th>Item</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>R9. Vary tasks by student interest</td>
<td>118.48</td>
<td>353.609</td>
<td>.647</td>
<td>.960</td>
</tr>
<tr>
<td>R10. Vary task by learner profile (i.e. by learning style, grouping or environmental preferences)</td>
<td>118.50</td>
<td>358.897</td>
<td>.675</td>
<td>.960</td>
</tr>
<tr>
<td>R11. Provide opportunities for students’ work to be based upon the solving of real and relevant problems</td>
<td>118.30</td>
<td>364.992</td>
<td>.609</td>
<td>.961</td>
</tr>
<tr>
<td>R12. Allow for a wide range of product alternatives (i.e. allowing 3 or more different ways for students to demonstrate mastery of a topic)</td>
<td>118.61</td>
<td>357.918</td>
<td>.678</td>
<td>.960</td>
</tr>
<tr>
<td>R13. Differ student assignments and culminating project based on individual or group readiness, learning needs, and interest</td>
<td>118.69</td>
<td>356.422</td>
<td>.687</td>
<td>.960</td>
</tr>
<tr>
<td>R14. Support students in using a wide range of varied resources (i.e. video, audio, internet, direct instruction groups, speeches, photo essays, etc.)</td>
<td>118.30</td>
<td>354.371</td>
<td>.730</td>
<td>.960</td>
</tr>
<tr>
<td>R15. Assign products (culminating projects) that necessitate that students conduct research</td>
<td>118.59</td>
<td>353.555</td>
<td>.704</td>
<td>.960</td>
</tr>
<tr>
<td>R16. Offer products (culminating projects) that balance structure and choice</td>
<td>118.51</td>
<td>358.230</td>
<td>.678</td>
<td>.960</td>
</tr>
<tr>
<td>R17. Work with individual students or groups to determine what form the product will take</td>
<td>118.51</td>
<td>358.758</td>
<td>.730</td>
<td>.960</td>
</tr>
<tr>
<td>R18. Necessitate that students apply key understandings and skills of the subject to their own interest areas</td>
<td>118.40</td>
<td>365.783</td>
<td>.504</td>
<td>.961</td>
</tr>
<tr>
<td>R19. Use both formative and summative evaluation</td>
<td>118.16</td>
<td>365.285</td>
<td>.506</td>
<td>.961</td>
</tr>
<tr>
<td>R20. Use compacting (i.e. identifying a skill, assessing which students have mastered the skill, allowing those who have mastered the skill to ‘compact out’ of the lesson)</td>
<td>118.45</td>
<td>359.607</td>
<td>.730</td>
<td>.960</td>
</tr>
<tr>
<td>R21. Use student learning contracts (i.e. agreement between student and teacher that grant the student certain freedom/choices about completing tasks yet require the student to meet certain...</td>
<td>118.49</td>
<td>357.678</td>
<td>.708</td>
<td>.960</td>
</tr>
<tr>
<td>R22. Use independent study (i.e. student and teacher identify a topic and method of investigation and student completes his/her own research and product to share with the class)</td>
<td>118.48</td>
<td>358.390</td>
<td>.653</td>
<td>.960</td>
</tr>
<tr>
<td>R23. Use interest centres / groups (i.e. where the students choose a topic and/or learning experience based on their interests)</td>
<td>118.34</td>
<td>359.859</td>
<td>.694</td>
<td>.960</td>
</tr>
<tr>
<td>R24. Using learning centres / groups (where the students have opportunities to use their different learning styles while focused on a given topic)</td>
<td>118.36</td>
<td>354.142</td>
<td>.799</td>
<td>.959</td>
</tr>
<tr>
<td>R25. Use various instructional strategies to differentiate (i.e. organizers, cubing, learning centres, learning contracts, modelling, choice boards, etc.)</td>
<td>118.35</td>
<td>351.748</td>
<td>.816</td>
<td>.959</td>
</tr>
<tr>
<td>R26. Use high level cooperative strategies (i.e. complex instruction, group investigation)</td>
<td>118.56</td>
<td>355.008</td>
<td>.691</td>
<td>.960</td>
</tr>
<tr>
<td>R27. Accommodate varying levels of academic ability and cultural differences within your class</td>
<td>118.64</td>
<td>353.269</td>
<td>.741</td>
<td>.960</td>
</tr>
<tr>
<td>R28. Assess where students are (regarding ability level, interests, learning style) and design appropriate lessons</td>
<td>118.35</td>
<td>357.334</td>
<td>.718</td>
<td>.960</td>
</tr>
</tbody>
</table>

Table 2: Item-total statistics of perceived readiness for using differentiated instruction strategies.

Principal Component Analysis (PCA) was used to identify patterns in data of high dimension (Smith, 2002). Reliability for each composite score of each component was examined and all components are of good internal consistency, ranging from 0.61 to 0.91. Three components were identified in Part 1 concerning teaching beliefs upon differentiated instruction and these three components which accounted for 57.06% of the total variance, which had a high internal consistency ($r=0.87$) (see Table 3). Factor scores were computed for each rotated component. Items loaded on Component 1 included: TB1, TB2, TB4, TB8, TB10 and TB10. Component 1 seemingly reflected how teachers design learning and teaching to respond to learner diversity. This Component 1 was thus labelled as “Curriculum planning”. The Cronbach’s alpha is 0.82. The following items loaded on Component 2: TB5,
TB7, TB11 and TB13 reflected teachers’ understanding of students’ characteristics prior to curriculum planning, thus Component 2 was labelled as “Understanding student differences”. The Cronbach’s alpha for Component 2 is 0.72. Items TB6, TB9 and TB14 loaded on Component 3 seem to reflect teachers’ expectations to help students achieve success in learning, thus it was labelled as “Creating student success”. The Cronbach’s alpha score for Component 3 is 0.61.

In Part 2 regarding perceived readiness for using differentiated instruction strategies, there were five components that accounted for 69.11% of the total variance, which has a high internal consistency (r=0.96) (see Table 4). The loadings were considered high as they were greater than 0.5. The identified components were used as separate dependent variables. Component A included R12, R15, R16, R17, R18, R27 and R28, which was labelled as “Student autonomy” as these items reflected the provision of space for students to learn through self-regulation strategies such as research. The Cronbach’s alpha is 0.91. Component B was labelled as “Learning environment” as items including R21, R22, R24, R25 and R26 loaded on Component B were all related to the strategies used to provoke an active learning environment. The Cronbach’s alpha is 0.90. Component C was labelled as “Content” while items including R1, R2, R4, R5, R6, R7 and R8 loaded on this component reflect the strategies that encourage students’ higher-order thinking skills such as creativity and critical thinking skills in learning contents. The Cronbach's alpha is 0.89. Component D was labelled as “Products” as items (R10, R11, R13, R14 and R19) loaded on this component are the assignments and learning products to demonstrate the outcomes of student learning. The Cronbach’s alpha is 0.84. Items including R3, R9, R20 and R23 loaded on Component E was labelled as “Process”, which reflected the learning and teaching activities in catering for diverse needs of students. The Cronbach's alpha is 0.82.

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB1. I can assist some students to learn with the use of carefully prepared prompts.</td>
<td>.828</td>
<td>.032</td>
<td>.075</td>
</tr>
<tr>
<td>TB2. A student's comprehension of text will be dependent on activating prior knowledge.</td>
<td>.692</td>
<td>.309</td>
<td>.151</td>
</tr>
<tr>
<td>TB4. Students who have difficulty maintaining concentration and completing a task and therefore develop more effective routines.</td>
<td>.527</td>
<td>.237</td>
<td>.139</td>
</tr>
<tr>
<td>TB8. Effective classroom management improves teaching and learning.</td>
<td>.772</td>
<td>.310</td>
<td>.172</td>
</tr>
<tr>
<td>TB10. Cultural diversity among students will lead to different</td>
<td>.441</td>
<td>.523</td>
<td>.103</td>
</tr>
</tbody>
</table>
interpretations of the same text.

<table>
<thead>
<tr>
<th>Teaching Belief</th>
<th>TB12</th>
<th>TB5</th>
<th>TB7</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students can learn, given an appropriate educational environment.</td>
<td>.509</td>
<td>.281</td>
<td>.485</td>
</tr>
<tr>
<td>When I help some students make links and build on previous knowledge, I am encouraging success in learning.</td>
<td>.220</td>
<td>.709</td>
<td>.333</td>
</tr>
<tr>
<td>Prior to teaching a new skill, it is necessary to analyze a task and ascertain the knowledge and skills that are required.</td>
<td>.219</td>
<td>.837</td>
<td>.000</td>
</tr>
<tr>
<td>By posing different questions, I can test understanding at various levels.</td>
<td>.285</td>
<td>.639</td>
<td>.233</td>
</tr>
<tr>
<td>All students can be successful in my class.</td>
<td>.044</td>
<td>.440</td>
<td>.395</td>
</tr>
<tr>
<td>If I teach and visually display context specific vocabulary, students’ writing will be enhanced.</td>
<td>.264</td>
<td>.101</td>
<td>.678</td>
</tr>
<tr>
<td>If I provide graphic organizers for students to record their work, it will lead to better understanding of material.</td>
<td>.343</td>
<td>.223</td>
<td>.519</td>
</tr>
<tr>
<td>I can ensure that all students experience success by adapting the curriculum.</td>
<td>-.033</td>
<td>.113</td>
<td>.840</td>
</tr>
</tbody>
</table>

Table 3: Rotated component matrix of teaching beliefs upon differentiated instruction.

<table>
<thead>
<tr>
<th>Component</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differentiate using major concepts</td>
<td>A</td>
</tr>
<tr>
<td>R12. Range of product</td>
<td>.565</td>
</tr>
<tr>
<td>R15. Conduct research</td>
<td>.720</td>
</tr>
<tr>
<td>R16. Balance structure and choice</td>
<td>.762</td>
</tr>
<tr>
<td>R17. Product form</td>
<td>.687</td>
</tr>
<tr>
<td>R18. Apply key understandings</td>
<td>.727</td>
</tr>
<tr>
<td>R22. Independent study</td>
<td>.223</td>
</tr>
<tr>
<td>R24. Learning centres/ groups</td>
<td>.381</td>
</tr>
<tr>
<td>R25. Various instructional strategies</td>
<td>.445</td>
</tr>
<tr>
<td>R26. High level cooperative strategies</td>
<td>.123</td>
</tr>
<tr>
<td>R1. Differentiate using major concepts</td>
<td>.307</td>
</tr>
<tr>
<td>R2. Variety of materials</td>
<td>.311</td>
</tr>
<tr>
<td>R4. Application of knowledge</td>
<td>.288</td>
</tr>
<tr>
<td>R5. Higher level tasks</td>
<td>.126</td>
</tr>
<tr>
<td>R6. Tiered activities</td>
<td>.312</td>
</tr>
<tr>
<td>R7. Critical and creative thinking</td>
<td>.165</td>
</tr>
<tr>
<td>R8. Continuum of the equalizer</td>
<td>.162</td>
</tr>
<tr>
<td>R10. Learner profile</td>
<td>.124</td>
</tr>
<tr>
<td>R11. Real and relevant problems</td>
<td>.053</td>
</tr>
<tr>
<td>R13. Differ assignments</td>
<td>.432</td>
</tr>
<tr>
<td>R14. Varied resources</td>
<td>.353</td>
</tr>
<tr>
<td>R19. Formative and summative evaluation</td>
<td>.137</td>
</tr>
<tr>
<td>R3. Support mechanisms</td>
<td>.200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>.365</td>
<td>.220</td>
<td>.346</td>
<td>.033</td>
</tr>
<tr>
<td>B</td>
<td>.335</td>
<td>.110</td>
<td>.076</td>
<td>.336</td>
</tr>
<tr>
<td>C</td>
<td>.191</td>
<td>.136</td>
<td>.165</td>
<td>.312</td>
</tr>
<tr>
<td>D</td>
<td>.212</td>
<td>.240</td>
<td>.285</td>
<td>.196</td>
</tr>
<tr>
<td>E</td>
<td>.212</td>
<td>.240</td>
<td>.285</td>
<td>.196</td>
</tr>
</tbody>
</table>
PERCEIVED PREPAREDNESS AND TEACHING BELIEFS OF DIFFERENTIATED INSTRUCTION: FROM PROSPECTIVE TEACHERS’ PERSPECTIVE

<table>
<thead>
<tr>
<th>R9. Student interest</th>
<th>.201</th>
<th>.154</th>
<th>.455</th>
<th>.186</th>
<th>.543</th>
</tr>
</thead>
<tbody>
<tr>
<td>R20. Compacting</td>
<td>.299</td>
<td>.527</td>
<td>.095</td>
<td>.218</td>
<td>.556</td>
</tr>
<tr>
<td>R23. Interest centres / groups</td>
<td>.246</td>
<td>.380</td>
<td>.083</td>
<td>.276</td>
<td>.663</td>
</tr>
</tbody>
</table>

Table 4: Rotated component matrix of teaching beliefs upon differentiated instruction.

4. RESULTS AND DISCUSSION

4.1. Demographic characteristics

The response rate of the survey was acceptable, with 59.28%. There were more female prospective teachers in the study, occupying nearly 60% (N=52). More than a half of the participants were Year 1 and Year 4 students respectively, of which only very few prospective teachers in the Liberal studies stream were in the study (N=5). Around 40% of the participants (N=33) had teaching practice experience. None of the participants undertook the courses about catering for learner diversity.

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>36</td>
<td>40.9%</td>
</tr>
<tr>
<td>Female</td>
<td>52</td>
<td>59.1%</td>
</tr>
<tr>
<td>Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 1</td>
<td>30</td>
<td>34.1%</td>
</tr>
<tr>
<td>Year 2</td>
<td>7</td>
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</tr>
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<td>Year 3</td>
<td>15</td>
<td>17.0%</td>
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<tr>
<td>Year 4</td>
<td>35</td>
<td>39.8%</td>
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<tr>
<td>Year 5</td>
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<td>1.1%</td>
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<tr>
<td>Teaching practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>55</td>
<td>62.5%</td>
</tr>
<tr>
<td>Yes</td>
<td>33</td>
<td>37.5%</td>
</tr>
<tr>
<td>Major of study</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chinese Language Education</td>
<td>17</td>
<td>19.3%</td>
</tr>
<tr>
<td>English Language Education</td>
<td>17</td>
<td>19.3%</td>
</tr>
<tr>
<td>Mathematics Education</td>
<td>23</td>
<td>26.1%</td>
</tr>
<tr>
<td>Liberal Studies Education</td>
<td>5</td>
<td>5.7%</td>
</tr>
<tr>
<td>Sports and Physical Education</td>
<td>26</td>
<td>29.5%</td>
</tr>
<tr>
<td>Enrollment in courses related to learner diversity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>88</td>
<td>100%</td>
</tr>
<tr>
<td>Yes</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Table 5: Demographic information of the respondents (N=88)

4.2. Research question 1. What are prospective teachers’ teaching beliefs upon differentiated instruction?

The overall teaching beliefs of prospective teachers regarding differentiated instruction had a mean score of 4.63 (SD=0.63), which reveals that teachers were oriented towards differentiated instruction (Table 6). Amongst the components, Component 2 “Understanding student differences” was of the highest mean score (M=4.76, SD=0.73), as followed by Component 1
“Curriculum planning” (M=4.67, SD=0.75) and Component 3 “Creating student success” (M=4.38, SD=0.78).
There are only two items with a mean score above 5.0, including “TB8 Effective classroom management improves teaching and learning” (M=5.30, SD=1.04) and “TB5. When I help some students make links and build on previous knowledge, I am encouraging success in learning” (M=5.00, SD=0.96). Interestingly, it is noted that “TB8. Effective classroom management improves teaching and learning” was of the highest mean score amongst all of the individual items. This denotes that teachers realized the importance of classroom management in assisting students in diverse mixed-ability classrooms. Such finding is consistent with other studies (e.g., Dixon, Yssel, McConnell, & Hardin, 2014; Wan, 2016, 2017; VanTassel-Baska & Stambaugh, 2005), where there are low teacher expectations on student learning. This may be due to certain environmental factors such as great diversity in inclusive settings, where teachers have to ensure their “control” over the classroom.

Amongst 13 items, one item with a mean score below 4.0 was “TB14. I can ensure that all students experience success by adapting the curriculum” (M=3.94, SD=1.15). Teachers seemed not to realize that they were able to help students achieve success through curriculum adaptation, although another item “TB13. All students can be successful in my class” obtained a mean score of 4.39 (SD=1.08). In other words, teachers believed that students can get success but they did not agree that students were able to succeed in an adapted curriculum. This may be related to prospective teachers’ “anticipated” difficulties in curriculum adaptation when doing differentiated instruction (VanTassel-Baska & Stambaugh, 2005; Westwood, 2001; Yuen, Westwood, & Wong, 2005). There is a need for further inquiry about prospective teachers’ interpretations of student success and curriculum modifications in a later study.

<table>
<thead>
<tr>
<th>Overall Teaching Beliefs (Cronbach’s alpha= 0.87, N. of items=13)</th>
<th>M</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum planning (Cronbach’s alpha= 0.82, N. of items=6)</td>
<td>4.67</td>
<td>0.75</td>
</tr>
<tr>
<td>TB1. I can assist some students to learn with the use of carefully prepared prompts.</td>
<td>4.47</td>
<td>1.10</td>
</tr>
<tr>
<td>TB2. A student’s comprehension of text will be dependent on activating prior knowledge.</td>
<td>4.52</td>
<td>1.04</td>
</tr>
<tr>
<td>TB4. Students who have difficulty maintaining concentration and completing a task and therefore develop more effective routines.</td>
<td>4.05</td>
<td>1.08</td>
</tr>
<tr>
<td>TB8. Effective classroom management improves teaching and learning.</td>
<td>5.30</td>
<td>1.04</td>
</tr>
<tr>
<td>TB10. Cultural diversity among students will lead to different interpretations of the same text.</td>
<td>4.73</td>
<td>0.96</td>
</tr>
<tr>
<td>TB12. All students can learn, given an appropriate educational environment.</td>
<td>4.95</td>
<td>1.02</td>
</tr>
</tbody>
</table>
Table 6. Mean scores of prospective teachers’ teaching beliefs of differentiated instruction (N=88)

<table>
<thead>
<tr>
<th>Component 2 “Understanding student differences” (Cronbach’s alpha= 0.72, N. of items=4)</th>
<th>4.76</th>
<th>0.73</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB5. When I help some students make links and build on previous knowledge, I am encouraging success in learning.</td>
<td>5.00</td>
<td>0.96</td>
</tr>
<tr>
<td>TB7. Prior to teaching a new skill, it is necessary to analyze a task and ascertain the knowledge and skills that are required.</td>
<td>4.73</td>
<td>0.88</td>
</tr>
<tr>
<td>TB11. By posing different questions, I can test understanding at various levels.</td>
<td>4.93</td>
<td>1.02</td>
</tr>
<tr>
<td>TB13. All students can be successful in my class.</td>
<td>4.39</td>
<td>1.08</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component 3 “Creating student success” (Cronbach’s alpha= 0.61, N. of items=3)</th>
<th>4.38</th>
<th>0.78</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB6. If I teach and visually display context specific vocabulary, students’ writing will be enhanced.</td>
<td>4.55</td>
<td>0.99</td>
</tr>
<tr>
<td>TB9. If I provide graphic organizers for students to record their work, it will lead to better understanding of material.</td>
<td>4.65</td>
<td>0.96</td>
</tr>
<tr>
<td>TB14. I can ensure that all students experience success by adapting the curriculum.</td>
<td>3.94</td>
<td>1.15</td>
</tr>
</tbody>
</table>

Remarks: To 2 d.p.

4.3. Research question 2. What are prospective teachers’ perceptions of their own readiness for using differentiated instruction strategies?

The overall perceived readiness for using differentiated instruction strategies had a mean score of 4.39, which represents that prospective teachers tended to be ready for using differentiation (Table 7). The composite mean scores of the five components ranged from 4.32 to 4.45. Prospective teachers had the highest mean score in the Component D “Product” (M=4.45, SD=0.76) while the lowest one was Component A “Student autonomy” (M=4.32, SD=0.80). Prospective teachers were likely not ready for allowing more student-dependent approaches in differentiated instruction. This finding is similar to a recent study by Wan (2017), where in-service teachers were not oriented to using student-dependent approach when doing differentiation. Prospective teachers’ perceptions of readiness may be subject to their degree of exposure to the knowledge and application of differentiated instruction strategies. In other words, the status of their perceived readiness reflected their previous and current learning experiences in differentiated instruction.

However, the composite mean score of perceived preparedness for using differentiation is lower than that of teaching beliefs. This implies that prospective teachers were oriented towards the idea of differentiated instruction but might not feel capable of using differentiated instruction in an inclusive environment. This is quite aligned with other studies showing that teachers held positive attitudes towards inclusive education and reckoned that
to cater for learner diversity was their responsibilities (Avramidis, & Norwich, 2002; Shade & Stewart, 2001), but teachers perceived there were different hindrances in carrying out differentiated instruction (e.g., Brighton et al., 2005; VanTassel-Baska & Stambaugh, 2005; Westwood, 2001; Yuen, Westwood, & Wong, 2005). This dissonance may result in failures in the implementation.

Amongst the items in the perceived readiness scale, the highest mean score belonged to the item “R19. Use both formative and summative evaluation” (M=4.68, SD=0.95). This is similar to other studies that indicated that teachers would more likely capable of using formative and summative assessments, which is one of the highlights in the curriculum assessment in Hong Kong (EDB, 2009, 2014). At the same time, the item “R27. Accommodate varying levels of academic ability and cultural differences within your class” got the lowest mean score (M=4.20, SD=1.08). This may be related to the “reality” problems such as big class problem and large student-teacher ratio, which are potentially the key obstacles that teachers likely would encounter in actual Hong Kong classrooms (Wan & Wan, 2013; Yuen, Westwood & Wong, 2005).

<table>
<thead>
<tr>
<th>Overall perceptions (Cronbach’s Alpha=0.96, No. of items=28)</th>
<th>M</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component A. Student autonomy (Cronbach’s Alpha=0.91, No. of items=7)</td>
<td>4.39</td>
<td>0.70</td>
</tr>
<tr>
<td>R12. Allow for a wide range of product alternatives (i.e. allowing 3 or more different ways for students to demonstrate mastery of a topic)</td>
<td>4.23</td>
<td>1.00</td>
</tr>
<tr>
<td>R15. Assign products (culminating projects) that necessitate that students conduct research</td>
<td>4.25</td>
<td>1.13</td>
</tr>
<tr>
<td>R16. Offer products (culminating projects) that balance structure and choice</td>
<td>4.33</td>
<td>0.99</td>
</tr>
<tr>
<td>R17. Work with individual students or groups to determine what form the product will take</td>
<td>4.33</td>
<td>0.91</td>
</tr>
<tr>
<td>R18. Necessitate that students apply key understandings and skills of the subject to their own interest areas</td>
<td>4.44</td>
<td>0.93</td>
</tr>
<tr>
<td>R27. Accommodate varying levels of academic ability and cultural differences within your class</td>
<td>4.20</td>
<td>1.08</td>
</tr>
<tr>
<td>R28. Assess where students are (regarding ability level, interests, learning style) and design appropriate lessons</td>
<td>4.49</td>
<td>0.97</td>
</tr>
<tr>
<td>Component B. Learning environment (Cronbach’s Alpha=0.90, No. of items=5)</td>
<td>4.39</td>
<td>0.86</td>
</tr>
<tr>
<td>R21. Use student learning contracts (i.e. agreement between student and teacher that grant the student certain freedom/choices about completing tasks yet require the student to meet certain expectations)</td>
<td>4.35</td>
<td>0.97</td>
</tr>
<tr>
<td>R22. Use independent study (i.e. student and teacher identify a topic and method of investigation and student completes his/her own research and product to share with the class)</td>
<td>4.36</td>
<td>1.02</td>
</tr>
<tr>
<td>R24. Using learning centres / groups (where the students have opportunities to use their different learning styles while focused on a given topic)</td>
<td>4.48</td>
<td>0.98</td>
</tr>
</tbody>
</table>
PERCEIVED PREPAREDNESS AND TEACHING BELIEFS OF DIFFERENTIATED INSTRUCTION: FROM PROSPECTIVE TEACHERS’ PERSPECTIVE

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>M</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>R25.</td>
<td>Use various instructional strategies to differentiate (i.e. organizers, cubing, learning centres, learning contracts, modelling, choice boards, etc.)</td>
<td>4.49</td>
<td>1.04</td>
</tr>
<tr>
<td>R26.</td>
<td>Use high level cooperative strategies (i.e. complex instruction, group investigation)</td>
<td>4.28</td>
<td>1.09</td>
</tr>
<tr>
<td><strong>R25.</strong></td>
<td><strong>Use various instructional strategies to differentiate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>R26.</strong></td>
<td><strong>Use high level cooperative strategies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>R27.</strong></td>
<td><strong>Use a variety of materials other than standard text (i.e. graphic images, audio-visual representations, internet)</strong></td>
<td>4.61</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>R28.</strong></td>
<td><strong>Use higher level tasks for all learners (i.e. application, elaboration, providing evidence, synthesis)</strong></td>
<td>4.23</td>
<td>1.18</td>
</tr>
<tr>
<td><strong>R29.</strong></td>
<td><strong>Use tiered activities (i.e. offering parallel tasks at varied levels of complexity, depth and abstractness with various degrees of scaffolding, support, or direction according to student readiness or learning style)</strong></td>
<td>4.32</td>
<td>1.01</td>
</tr>
<tr>
<td><strong>R30.</strong></td>
<td><strong>Plan activities that involve all learners in both critical and creative thinking</strong></td>
<td>4.36</td>
<td>0.95</td>
</tr>
<tr>
<td><strong>R31.</strong></td>
<td><strong>Vary tasks along the continuum of the equalizer (i.e. based on complexity of an activity – from concrete to abstract, or from slow to quick, etc.)</strong></td>
<td>4.41</td>
<td>0.92</td>
</tr>
<tr>
<td><strong>R32.</strong></td>
<td><strong>Provide opportunities for students’ work to be based upon the solving of real and relevant problems</strong></td>
<td>4.55</td>
<td>0.82</td>
</tr>
<tr>
<td><strong>R33.</strong></td>
<td><strong>Differ student assignments and culminating project based on individual or group readiness, learning needs, and interest</strong></td>
<td>4.15</td>
<td>1.05</td>
</tr>
<tr>
<td><strong>R34.</strong></td>
<td><strong>Support students in using a wide range of varied resources (i.e. video, audio, internet, direct instruction groups, speeches, photo essays, etc.)</strong></td>
<td>4.55</td>
<td>1.06</td>
</tr>
<tr>
<td><strong>R35.</strong></td>
<td><strong>Use both formative and summative evaluation</strong></td>
<td>4.68</td>
<td>0.95</td>
</tr>
<tr>
<td><strong>R36.</strong></td>
<td><strong>Use support mechanisms (i.e. reading buddies, organizers, study guides) on a daily basis</strong></td>
<td>4.35</td>
<td>1.06</td>
</tr>
<tr>
<td><strong>R37.</strong></td>
<td><strong>Vary tasks by student interest</strong></td>
<td>4.36</td>
<td>1.22</td>
</tr>
<tr>
<td><strong>R38.</strong></td>
<td><strong>Use compacting (i.e. identifying a skill, assessing which students have mastered the skill, allowing those who have mastered the skill to ‘compact out’ of the lesson)</strong></td>
<td>4.39</td>
<td>0.88</td>
</tr>
<tr>
<td><strong>R39.</strong></td>
<td><strong>Use interest centres / groups (i.e. where the students choose a topic and/or learning experience based on their interests)</strong></td>
<td>4.50</td>
<td>0.91</td>
</tr>
</tbody>
</table>

Table 7: Mean scores of prospective teachers’ perceived readiness for using differentiated instruction (N=88).

4.4. Research question 3. Are there any relationships between teaching beliefs and perceived readiness upon differentiated instruction and demographic variables?

No significant differences were found in teaching beliefs according to prospective teachers’ year of study, major of study, and teaching practice
experience (Table 8). ANOVA tests also indicated that no significant
differences were found between perceived preparedness and prospective
teacher characteristics by year of study, major of study and teaching practice
experience. However, significant difference was found in the overall
perceptions of own use of differentiated instruction strategies and gender
($F=5.52$), $p<0.05$, while female prospective teachers general had higher mean
scores ($M=4.53$, $SD=0.44$). Significant differences were found in the four
separate components out of the five components in the perceived readiness
scale, including learning environment, content, product, and process in
association with gender. This finding was quite similar to other studies (e.g.,
Chong, Forlin, & Au, 2007; OECD, 2009; Specht et al., 2016) related to
teachers’ perceptions of differentiated instruction, where female teachers
tended to use differentiated instruction which is in a student-oriented and
constructive way.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall perceived preparedness</td>
<td>Male</td>
<td>36</td>
<td>4.18</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>52</td>
<td>4.53</td>
</tr>
</tbody>
</table>

Table 8: Comparison of composite mean scores of perceived preparedness of using
differentiated instruction strategies.

4.5. Research question 4. Are there any correlations between teaching beliefs and perceived
readiness for using differentiated instruction strategies?

Table 9 indicated the correlations amongst teaching beliefs and perceived
readiness for using differentiated instruction. Within the teaching beliefs scale,
the highest correlation between Component 1 “Curriculum planning” and
Component 2 “Understanding student differences” ($r=0.63$). Relatively high
correlations also existed between Component 2 “Understanding student
differences” and Component 3 “Creating student success”, and between
Component 1 “Curriculum planning” and Component 3 “Creating student
success”, where $r>0.50$.

Meanwhile, in the perceived readiness for using differentiated instruction scale,
all components had high correlations with each other, ranging from 0.68 to
0.76, whilst the highest correlation was found between Component A “Student
autonomy” and Component B “Learning environment” ($r=0.76$). This implies
an inter-locking relationship between an open learning environment and
student autonomy, while students can have opportunities to learn actively in a
supportive learning environment (Powers, 2008; Reeve & Jang, 2006). In other
words, prospective teachers were likely prepared to use autonomous
differentiated teaching strategies.
PERCEIVED PREPAREDNESS AND TEACHING BELIEFS OF DIFFERENTIATED INSTRUCTION: FROM PROSPECTIVE TEACHERS’ PERSPECTIVE

Overall teaching beliefs (OTB) | C1 | C2 | C3 | OPR | CA | CB | CC | CD | CE
--- | --- | --- | --- | --- | --- | --- | --- | --- | ---
Component 1 "Curriculum planning" (C1) | .909** | - | - | - | - | - | - | - | -
Component 2 "Understanding student differences" (C2) | .837** | .625** | - | - | - | - | - | - | -
Component 3 “Creating student success” (C3) | .731** | .496** | .499** | - | - | - | - | - | -
Overall perceived readiness (OPR) | .373** | .300** | .228* | .452** | - | - | - | - | -
Component A “Student autonomy” (CA) | .163 | .110 | .065 | .281** | .884** | - | - | - | -
Component B “Learning environment” (CB) | .276* | .190 | .153 | .416** | .900** | .755** | - | - | -
Component C “Content” (CC) | .544** | .462** | .433** | .490** | .887** | .688** | .747** | - | -
Component D “Product” (CD) | .362* | .356** | .171 | .377** | .863** | .689** | .739** | .695* | -
Component E “Process” (CE) | .289* | .196 | .155 | .449** | .856** | .676** | .718** | .724* | .735* | -

Remarks: **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Table 9: Correlation amongst teaching beliefs and perceived readiness of differentiated instruction.

5. CONCLUSION

The quantitative study demonstrated Hong Kong prospective teachers’ teaching beliefs and perceived preparedness for using differentiated instruction. Prospective teachers generally showed their orientations to differentiated instruction. However, there may be incongruence in their differentiation orientations and perceived preparedness for their own use of differentiated instruction strategies. Teaching beliefs upon differentiated instruction included three identified components: “Understanding student differences”, “Curriculum planning” and “Creating student success”, where prospective teachers seemingly put less emphasis on student success. Teachers’ perceptions of own preparedness for using differentiation strategies comprising five components: “Student autonomy”, “Learning environment”, “Content”, “Process” and “Product”. Prospective teachers showed higher recognition of classroom management skills but perceived they less likely could help students succeed to learn with curriculum adaptation. Meanwhile, with reference to perceived preparation for the use of differentiated strategies, student-dependent approaches were less ready for use. With reference to the key findings, key directions in teacher education and research directions for...
supporting and facilitating the preparation and future development of differentiated instruction are discussed as follows.

First of all, teacher education programmes should cover the knowledge and skills in the utilization of classroom management skills for differentiated instruction. Second, prospective teachers should be prepared to solve the “anticipated” problems and be empowered in making “a cognitive effort to monitor the conditions in question, consciously think[ing] about the situation, and then work[ing] to control it (problem) by making an attempt to reach the set goal or change the context” when learning differentiated instruction (Tricarico & Yendol-Hoppey, 2012, p. 154). Moreover, prospective teachers can be given opportunities to experience the use of differentiated instruction strategies including student-dependent approaches so that they can have first-hand experience to observe, manipulate and reflect on the process. Apart from that, prospective teachers can have opportunities to reflect and review their own teaching expectations upon student learning.

Few limitations still existed in this study. First, the sample size of prospective teachers was small and it was hard to find out if demographic variables such as gender, year of study, major of study, and so on, may influence prospective teachers’ perceptions and beliefs. There may also be a lack of generalizability to other groups of prospective teachers. Second, this is a self-reported study where perceptions and teaching beliefs may be varied from time to time. Third, as this study used only one survey to inquire prospective teachers’ perceptions and teaching beliefs. There may lack an in-depth understanding of how prospective teachers learn and experience differentiated instruction during their teacher education programme. Therefore, further research direction can be done to expand and enhance the current study. A cross-sectional study design can be used to examine different cohorts of prospective teachers’ perceptions and teaching beliefs and this can be used for comparing and exploring if any similarities and differences exist. At the same time, with the expansion of the sampling size, there can be further investigations about the influence of demographic variables. Furthermore, a follow-up study, with the use other research methods such as interviews and class observation during field experience, can be done to understand what and how prospective teachers understand and practice differentiated instruction.

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The author would like to express her sincere thanks to all of the participating prospective teachers for their participation and assistance in data collection and providing precious insights on differentiated instruction.
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PERCEIVED PREPAREDNESS AND TEACHING BELIEFS OF DIFFERENTIATED INSTRUCTION: FROM PROSPECTIVE TEACHERS’ PERSPECTIVE


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Undergraduate degrees and basic education early years: a necessary interlocution in teacher education

Joana Paulín Romanowski¹, Pura Lucia Oliver Martins², and Simone Regina Manosso Cartaxo³

¹Pontifícia Universidade Católica do Paraná-PUCPR
joana.romanowski@gmail.com

²Pontifícia Universidade Católica do Paraná-PUCPR
Pura.oliver@pucbr.br

³Universidade Estadual de Ponta Grossa-UEPG
simonemcartaxo@hotmail.com

ABSTRACT
This research focuses on the dialogue between the undergraduate courses and the early years of basic education in order to provide subsidies for the field of teacher education in undergraduate courses. As objectives, it was defined: i) to identify undergraduate courses and teachers who articulate teacher training in the early years of elementary education; ii) to analyze the training course and the teaching experience of teachers in undergraduate courses in order to seek explanatory factors which favor the dialogue with early childhood elementary education; iii) to analyze how teachers from the undergraduate courses conceive the idea of literacy in the knowledge areas. The research, of a qualitative approach and based on the historical materialist dialectic, takes as epistemological axis the theory concept as practice expression, according to Bernardo (1992, 2004); Castoriadis (1985), Martins (2003, 2015), Santos (1992, 2004) and Thompson (2009). The research began with an exploratory study where 1,177 undergraduate courses in public universities were consulted and, among them, seven courses were located in the areas of Geography, Language and Literature and Mathematics which showed evidences of interaction with early childhood basic school. Documentary analysis was performed on educational projects, teaching plans, course curricula, as well as interviews with twelve teacher trainers. The analysis allowed us to identify new kinds of social relationships arising from the workers’ struggle practice. These new types of relationships lead to new forms of trainer teachers’ organization and result in the dialogue between the undergraduate courses and the early childhood basic school.

KEYWORDS: teacher initial education, literacy teacher, university interaction and basic education.
1. INTRODUCTION
The present study contains the results of investigations related to the research line: Theory and Pedagogical Practice in Teacher Education at the Graduate Program in Education at Pontifical Catholic University of Paraná - Research Group: Educational Praxis - Dimensions and processes. The research focuses on the interlocution of undergraduate courses with the early years of basic education, since Early Childhood Education. It considers that this articulation involves a new conception of the process of education in the undergraduate courses of teacher education, literacy degrees.

Teaching with young children and at the beginning of schooling comprehends the understanding that all areas of school knowledge presuppose literacy teaching and learning (Cartaxo, 2014; Cartaxo, Martins, & Romanowski, 2017). Literacy in each area of school knowledge requires recognizing children's cognitive development (Bruner, 1972; Vygotsky, 1991; 2014). The purpose of this study is to: i) identify undergraduate courses and teachers that articulate teacher education with the first years of elementary school; ii) analyze the education course and the teaching experience of undergraduate teachers in order to find explanatory elements that favor the dialogue with elementary education in the first childhood in the perspective of a literacy process in the areas of school knowledge; analyze how undergraduate teachers conceive literacy in different areas of knowledge.

This required the identification of undergraduate courses with proposals articulated with the Early Childhood Education and after listing these courses we raised the following question: How do the undergraduate courses articulate with the early childhood education in the perspective of an education process that considers literacy in the areas of school knowledge?

2. THEORETICAL FRAMEWORK
In order to answer this question we took as reference Castoriadis (1985) who will say that the germs of change are external to the labor process itself and they result from social relationships antagonistic to capitalist relationships. In this way, Santos (1992, 2004), in agreeing with Castoriadis, explains that within the educational institutions there are capitalist social relationships determining capitalist work, but at the same time there are also anti-capitalist social relationships.

While capitalist social relationships are marked by individualistic, competitive and hierarchical relationships, anti-capitalist social relationships are collective and supportive. In these anti-capitalist relationships, Santos (1992) affirms together with Bernardo (1992, 2004), that there may be, even in an embryonic way, the social relationships of a new type resulting from the practice of the
workers' struggle. Thus, the discussion focus is to search for the elements that indicate a process of new type in teacher education generated in the process of teacher education practices. The research is based on historical materialist dialectics considering the assumptions of heterodox materialism. According to Martins (2003, 2015), this Marxist view conceives social transformation as a process historically constructed in and through the workers’ struggles and from it results the conception of theory as an expression of practice, that is, an experiment of the subjects.

The defense of the human experience taken by Thompson (2009) is based on the assumption that men and women are subjects who live experiences and think about them. The author explains that people think and elaborate on experiences in its complexity, within their consciousness and then they act in specific situations. In this perspective Thompson does not reduce the experience to common sense, like many intellectuals, but how it is possible to be devised in the form of knowledge. He defines that the entire theoretical basis must be grasped in the practice of the human action and to the extent of the dialogue between theory and evidence.

In order to direct our reflections we present initially the study’s methodological course. Next, the documents (syllabuses, bibliographical references of the teaching plans and the pedagogical projects of the bachelor’s degree courses) and what teachers say about the articulation of the bachelor’s degrees with the initial years of Basic Education, ending with the results, discussions and conclusions.

3. METHODOLOGY.

The unit of analysis is formed by undergraduate courses in Brazilian universities that presented some form of interlocution between the teacher education in the bachelor’s degrees and basic education from the early childhood education. For that, an exploratory study was carried out with the consultation of undergraduate course sites in public universities in Brazil searching for pedagogical projects and syllabuses. We consulted 1,177 undergraduate courses, being 132 pedagogical projects, available online, which were selected for the study.

The reading of pedagogical projects and available syllabuses was carried out with the help of the keyword search tool: emergent literacy, literacy, day care, early childhood education, kindergarten, child, childhood, elementary school, elementary school, 1st to 4th grade; 1st to 5th grade, defined from documents and research in the field of teacher education. According to Williams (2007) keywords is a denomination for a set of words selected by the relationship between them, by the meanings bound in their interpretation and in their context; words that involve ideas and
values and that develop meanings without their contexts being understood by historical evidence.
As a result of this exploratory study we arrived at 7 universities located in the South, Southeast and Northeast regions of Brazil that initially were contemplated in the documents consulted, evidences of articulation between the bachelor’s degrees and early childhood in elementary education. After this delimitation we conducted 12 semi-structured interviews (Triviños, 2007) with professors from the bachelor’s degree courses in Geography, Language Arts and Mathematics

4. RESULTS.
4.1 Analysis of the documents: subjects that articulate training with basic education
The key words were located in syllabuses, bibliographical references of teaching plans and in pedagogical projects, allowing the identification of initial evidence on the articulation of bachelor’s degree courses with early childhood education of basic education, summarized in Table 1.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Localized keyword</th>
<th>Document location</th>
</tr>
</thead>
<tbody>
<tr>
<td>University 1 Geography</td>
<td>Day Care Children Early childhood</td>
<td>Founding of the Pedagogical Project Internship subject (syllabus) Course Completion Paper Modalities</td>
</tr>
<tr>
<td>University 2 Geography</td>
<td>Early Childhood Education Children Initial years Day Care Pre-school</td>
<td>Founding of the PPP Objectives of the Supervised Internship Subject Syllabus Bibliographical References</td>
</tr>
<tr>
<td>University 3 Geography</td>
<td>Early Childhood Education Children Initial years 1st and 2nd cycle</td>
<td>Program of Pedagogical Practices and Research subject in “observation places”</td>
</tr>
<tr>
<td>University 4 Geography</td>
<td>Early Childhood Education</td>
<td>Objectives of the teaching program of the Supervised Internship subject Program Content</td>
</tr>
<tr>
<td>University 5 Bachelor’s Degree</td>
<td>Literacy Child</td>
<td>Program Content Bibliographical References Linguistics Department</td>
</tr>
</tbody>
</table>
At the Geography course from University 1, for example, we find in the syllabus of *Analysis of Cartographic Documents* subject, indicators of the process of *spatial literacy* and bibliographical reference related to the initial years of Basic Education.


In this same university the subject of Supervised Internship in Geography contemplates the participative observation in early childhood education, favoring teacher education articulated with this level of basic education.
In University 2, in the subject of Supervised Internship, we find two objectives that are articulated directly to early childhood of basic education in which the literacy process is effective in the areas of school knowledge:

Analyze the main theoretical-methodological guidelines and program contents that guide the teaching-learning of Geography in Early Childhood Education and Initial Years of Primary Education, as well as the school daily life in these series;
Diagnose the school reality of Early Childhood Education and the Initial Years of Elementary Education and its importance for the construction of citizenship.
(document 2-University 2)

Also, in the description of the subject’s program we find reference to the *main theoretical-methodological guidelines and program contents that guide the teaching of Geography in Early Childhood Education and Elementary School; daily school routine in Early Childhood Education and Early Years of Elementary Education* (document 2-University 2)

At University 5, in Language Arts course teaching programs, the terms *literacy* and *child* are contemplated at various times as in the subjects related to the acquisition of oral and written language by the child and in the references citing
reference authors for literacy such as Emilia Ferreiro, Luiz Cagliari, Leonor Sciar-Cabral.
The Mathematics course, at University 6, was located by the pedagogical project, dated in 2005, which at different moments showed evidence of a relationship of the Mathematics degree with the initial years of basic education. In the discipline of Teaching Practice is proposed the study in the theoretical field of the *curriculum as well as the mathematical curricular organization for Early Childhood Education, Elementary and Secondary Education*. The subject of Contents and Methodology of Mathematics Teaching aims to study basic concepts of Mathematics that are taught in Early Childhood Education and in the initial years of Elementary Education as well as the main didactic resources available to the teaching of those related to *mathematical literacy*.

The documents favored the construction of the interview script carried out with 12 undergraduate professors of the subjects in which articulation with basic education was evidenced. The content of the interviews made it possible to analyze the trajectory of the teacher education, conception of these teachers about the teacher education for teaching with children pointing out elements that evidence new type of training practices that establish the articulation between undergraduate and basic education.

5. IMPLICATIONS/DISCUSSION.
5.1 Conceptions and practices of teachers on teacher education articulated to basic education

From the practices reported by the teachers, it was possible to identify some actions resulting from collective reflections that arose from practical problems. In this sense, the proposals developed by teachers made it possible to develop analysis categories that point out explanatory elements that favor the education dialogue with children’s basic education in the perspective of a literacy process in the areas of school knowledge, namely: experience, literacy concepts and the conception of the basic school totality.

5.2. Experience

The defense of human experience taken by Thompson (2009) assumes that men and women are subjects who are exposed to experiences and think about them.

For Martins (2003, 2015) the theory will express the practical action of the subjects breaking with the idea that the theory guides the practice as well as Bernardo (1992, 2004) who defends the idea that the action is prior to consciousness. In this same sense Bruno (1989) explains that we do not act because we think, but because we are beings in action. This action is not due to
an aprioristic choice but to social determinations, which include and surpass us, precisely because the action is not individual but always social. Focusing on the experience of teacher educators, we analyze how the dialogues were established in the interviewees' discourse. They kept a constant discourse of approaching their practice in the bachelor's course with the initial years through different experiences lived throughout life, evidencing a new type of social relationships from the reflection of the experience. The analysis of the different discourses made it possible to gather evidences that these experiences involve practices and activities carried out that are articulated with basic education, summarized in the following figure.

This figure 1 expresses a process of constructing elements as a guiding thread that explains experience moments about teacher education. This conducting wire runs through time (from the beginning of the bachelor's degree) and the spaces (university and elementary school). Experiences are part of people's
lives and from them problem situations arise which lead to reflection and enable the transformation of existing reality. In this case, they point out elements of articulation between the experience of undergraduate teachers and basic education.

5. 3 Literacy concepts and the conception of basic education as a process of totality

Teachers from the undergraduate courses pointed out some points regarding the understanding that basic education is an ongoing process beginning by the child’s literacy in the areas of school knowledge. The transition from early childhood education to elementary education I and from this to primary education II is characterized, in Brazil, by many tensions. Thus, teachers verbalized their perceptions of the need for an ongoing process between early childhood education and elementary school.

For this, they consider that basic education teachers need to develop a teaching directed to children’s learning. That is, if the child presents a lack of learning of school knowledge, it is necessary to plan activities that help overcome the situation without assuming the blame of teachers from previous years. Teachers understand that the knowledge from specific areas needs to be worked out from the earliest years of basic education and for this they propose a transversality approach teaching in the early childhood education.

Thus, starting from theory as an expression of practice, we analyze the education course and the educators’ experience and how they conceive the articulation of the bachelor’s degrees with the initial years of elementary school.

6. CONCLUSIONS

Teachers who work in undergraduate teacher education courses point out as elements in the direction of a literacy bachelor’s degree:

(i) The experiences along the trajectory of their own education and their professional activity involving basic education, especially the education of children favor understanding that the process of teaching and learning in the area of school knowledge are initiated with literacy from early childhood education and go on to continue throughout elementary school.

(ii) A practice of articulated education among undergraduate courses for teacher education with basic education in its totality not restricted to the specific subjects at the end of basic education.

(iii) Conception that basic education is continuous, it is a totality, so teacher education is not restricted to specific disciplines, it is
extensive in that school knowledge can be transverse and worked in a cohesive and integrated way.

Thus, the reflections made by the teacher educators can be understood as systematizations that express concepts, knowledge generated in their teaching practice, it is almost possible to infer theoretical principles that may constitute guidelines for teacher education a new type of process.

We understand these propositions as a collective thought, since they were conceived around the same problem posed by the practice of different teachers. A conception of teacher education that prioritizes the interlocution with the initial years of basic education that originates in the experiences of the teachers and in the conception of totality of basic education.

REFERENCES


Teacher Education Needs an Epistemology of Practice

Tom Russell¹, and Andrea K. Martin²

¹Queen’s University, Canada
tomatqueens@gmail.com
²Queen’s University, Canada
Andrea.martin@queensu.ca

ABSTRACT
For how many decades has teacher education struggled with the tension between theory and practice? For how many decades have pre-service teachers reported that practicum experiences are more valuable than their learning in education courses? Are these issues being recognized and addressed by teacher educators? Certainly they are challenging. Our most recent research has focused on improving the quality of professional learning in the pre-service practicum and has led us to approach such questions from the perspective of epistemology and reflective practice. The traditional epistemology of the university focuses on propositional knowledge, with little or no attention to the epistemology of learning from experience. As teacher educators, we have struggled with this issue for many years and have concluded that the theory-practice tension will not be resolved until teacher educators recognize and address the need for dual epistemologies that speak not only to the theoretical background for teaching but also to the unique nature of learning from practicum experiences. Teacher candidates need the metacognitive understanding of what it means to be a teacher and how teachers learn from experience. They deserve no less than a significant reframing of the epistemology of teacher education in order to address the unique nature of learning from experience.

KEYWORDS: epistemology; reflective practice; learning from experience; metacognition

1. THEORETICAL FRAMEWORK
Drawing on a range of writing about teachers’ knowledge (Munby, Russell, & Martin, 2001), learning from experience (Darling-Hammond, 2006; Loughran, 2006; Mezirow, 1997; Schön, 1983, 1995) and the authority that uniquely derives from experience (Munby & Russell, 1994), we argue that teacher education needs to reframe learning from experience in terms of an epistemology of practice that is distinctly different from the traditional epistemology of the university.
2. METHODOLOGY
This is a conceptual paper that synthesizes literature with analyses of data from focus-group deliberations with teacher candidates to construct an argument that pre-service teacher education requires dual epistemologies to accommodate two radically different modes of learning.

3. RESULTS
Teacher education asks those learning to teach to learn in two very different contexts—university classrooms and school practicum placements—without exploring and explaining the differences and how two very different modes of learning can productively interact. Teacher candidates enter a program of teacher education believing in a single epistemology: first theory is learned (in university classrooms) and then applied in practice (in schools). Their apprenticeships of observation (Lortie, 1975) as students in schools have provided few, if any, insights into how teachers learn from experiences of teaching. They and their teacher educators speak all too easily of the divide between theory and practice; typically, little is done to address this divide (Vick, 2006).

Our literature analysis begins with insights presented by Feiman-Nemser and Buchmann (1987) in discussion of the educative aspects of the student teaching practicum. They begin by noting that teacher candidates must learn from interaction with students over time:

Prospective teachers are in a position to start learning from teaching, under guidance, and to see that some of the knowledge they need is “local”: It can only be derived from interactions with particular students over time. (p. 256)

They also emphasize the importance of how teacher candidates learn in practicum classrooms with support from teacher educators who understand the nature of learning from experience.

Student teaching is teacher education when intending teachers are moved toward a practical understanding of the central tasks of teaching; when their dispositions and skills to extend and probe student learning are strengthened; when they learn to question what they see, believe and do; when they see the limits of Justifying their decisions and actions in terms of “neat ideas” or classroom control; and when they see experience as a beginning rather than a culminating point in their learning. Meeting these conditions depends on teacher educators’ perceiving and acting on the central tasks of teacher preparation.

By themselves, student teachers can rarely see beyond what they want or need to do or what the classroom setting requires. . . . Teacher educators must be actively present in student teaching to give prospective teachers a concrete sense of pedagogical thinking and acting. (p. 272)
We acknowledge and applaud the point that teacher candidates need active support to move beyond the immediacy of the classroom, where they are learning how to think like a teacher rather than like a student, as they do in university classrooms.

For student teaching to be teacher education, it must go beyond survival or extending practice in the outward forms of teaching to sort out appropriate from inappropriate lessons of experience. Well-meaning praises from cooperating teachers, coupled with a focus on management, fixes the attention of student teachers in the wrong direction. University supervisors... must act in concert with cooperating [mentor] teachers to make student teaching an occasion for teacher education. (p. 272)

What intrigues us is that these authors point so clearly to the unique and different nature of learning from experience, yet they do not extend the argument to address the issue of different and conflicting epistemologies.

3.1 Professional Knowledge is Tacit

To begin our progress toward a second epistemology that is essential for teacher education, we recall Schön’s (1995) account of the tacit nature of professional knowledge gained from experience.

When we go about the spontaneous, intuitive performance of the actions of everyday life, we show ourselves to be knowledgeable in a special way. Often we cannot say what we know. When we try to describe it we find ourselves at a loss, or we produce descriptions that are obviously inappropriate. Our knowing is ordinarily tacit, implicit in our patterns of action... It seems right to say that our knowledge is in our action. And similarly, the workaday life of the professional practitioner reveals, in its recognitions, judgments, and skills, a pattern of tacit knowing-in-action. (p. 29).... I submit that such knowing-in-action makes up the great bulk of what we know how to do in everyday and in professional life. (p. 30)

Developing knowledge-in-action, which is tacit rather than explicit, requires those learning to teach to recognize the unfamiliar authority that is only gained through experience. The following passage sets out the issues:

We use the term authority of experience because of our concern that students never master learning from experience during preservice programs in a way that gives them direct access to the nature of the authority of experience. If Schön is correct that there is a knowledge-in-action that cannot be fully expressed in propositions and that learning from experience has its own epistemology, then our concern is that learning from experience is never clearly contrasted with learning that can be expressed and conveyed in propositions.
In their many years of schooling preservice teachers have seen two basic concepts of authority at work: the authority of reason, and the authority of position. While the goal of education can be cast in terms of establishing knowledge claims on the authority of reason, there are times when claims are seen to rest on the teacher's authority of position (Russell, 1983). . . . Unfortunately, school's preoccupation with the authority of reason and of position can cause teachers and students to ignore a type of authority lying at the heart of action and performance: the authority of experience. (Munby & Russell, 1994, p. 92)

Having introduced the concept of the tacit nature of knowing-in-action and the idea that what is learned from experience conveys a type of authority, we illustrate the significance of these ideas for a teacher candidate who took a metacognitive turn as he came to terms with how he was learning to teach:

The time between my first and second field placements gave me an ample opportunity to reflect on my experiences and determine exactly what I had learned, if anything at all. I believe it was during this time that I began to develop a more sophisticated understanding of what it is to teach. . . The result was ultimately a radical shift in my thinking about teaching and learning by putting the needs of learners front and centre. (Harrison, 2014, p. 3)

My professional development did not really commence until I understood that no one was going to tell me how to teach, and for that matter, it was not even possible to do so. . . One avenue for improving practice is for teachers to monitor their own experiences and to use them as a source of knowledge about teaching. Munby and Russell (1994) point out that this “authority of experience” is something beginning teachers must learn to trust in order to develop as professionals. (p. 5)

3.2 The Need for an Epistemology of Practice

Raelin (2007) introduced the idea of an epistemology of practice in words that speak clearly to Harrison’s account of his reinterpretation of his learning from experience as he moved beyond academic epistemology to embrace a new way of knowing.

The dominant empiricist epistemology governing our educational enterprises in higher education . . . leads us to separate theory and practice in an aspiration to define the best conceptual models to map external reality. (p. 496)

Academic epistemology, interpreted as knowing in advance of practice, can lead to “haste in wanting to know.” An epistemology of practice espouses as much intellectual quietness as the staccato of questions and answers. Practitioners take in experience and reflect on the lessons available in front of their eyes. They compare their experience to existing theory and determine its applicability. (p. 506)

We must qualify Raelin’s use of the word reflect as it applies to learning from experience. Many teacher educators have embraced the term reflection but may not recall that Schön’s (1983) unique contribution was much richer and more complex than merely looking back on experience. He described the concept of
reflection-in-action in terms of the powerful learning that can occur in moments of surprise and uncertainty:

The process of reflection-in-action begins when a spontaneous performance is interrupted by surprise. Surprise triggers reflection directed both to the surprising outcome and to the knowing-in-action that led to it. It is as though the performer asked himself, “What is this?” and at the same time “What understandings and strategies of mine have led me to produce this?” The performer restructures his understanding of the situation . . . It is what a good teacher does as she tries to make sense of a pupil’s puzzling question, seeking to discover, in the midst of classroom discussion, just how the pupil understands the problem at hand. (Schön, 1995, p. 30)

To emphasize the significance of an epistemology of practice for someone learning to teach, we provide an example from a teacher candidate writing about his practicum experience. This illustrates what Schön termed reframing in response to a surprising event. A dramatic change in thinking followed by a new course of action that paid huge dividends has all the reflective practice elements of reflection-in-action and reframing and captures the tacit nature of teachers’ professional knowledge.

It’s Friday now [in my Grade 10 science class] and things have not significantly improved since Wednesday. I’ve been trying to remember all the little things, but it’s a lot to break out of my way of thinking. I’m teaching ionic bonding, and today’s lesson is naming ionic compounds/write formulae from names—difficult because it requires an explicit understanding of electric charge. I’m still not feeling super confident in front of the class. I’m teaching and things are still confusing for the students; many cry out in protest. None of these things are the point. What is about to happen is probably the most critical incident of my entire practicum. One of my students, always vocal and gregarious, but often times pushing the line when it came to respecting authority, asks me to come over. He then says that he is a fairly observant guy, and he noticed I kept glancing over at Mr. J [my mentor teacher] while I taught. He asked me why I did that, or if I even noticed. I gave a polite response, but was surprised that I had not been aware of all the faces watching me while I’d been doing it, nor had I realized what sprang to me in that instant why I had been doing it. Clearly, things weren’t going as well as I wanted them to. I kept looking over at Mr. J for some sort of look of reassurance that I wasn’t making a complete mockery of myself up there. But that insecurity, that need for approval was noticeable and was detrimental to the students. As much as I wanted to care for their needs, my first instinct was to find a way for my own needs to be met. This moment had a profound impact on me. It showed me how easily the smallest, unconscious things can be scrutinized when you are teaching, but that was insignificant [compared] to what it caused me to do. I realized that if I wanted to gain control over the class, to teach for the students instead of myself, I had to shrug off my insecurities, I had to believe in myself as a teacher, and I had to tackle the class with more focus and purpose than naturally comes from me. I managed to put myself aside, not worry about approval, and actually learn. That class turned
around, and I’ve never felt more confident than I did in front of that class by the end of week 4. The students, who I knew were just pushing to see how far they could cross the line, learned to respect me, work with me. I developed a rapport that didn’t come easily but became strong. (Courtin, 2017)

The point of this long passage is to emphasize the unique nature of learning from experience and the dramatic differences between the learning described and the learning that happens in university classrooms. The literature and data provided in this section illustrate the influences on our thinking as we move toward the conclusion that teacher education needs an epistemology of practice that operates in parallel with the familiar academic epistemology.

4. DISCUSSION

Vick (2006) has made the historical argument that teacher educators have made many changes for ostensible improvement of the practicum without changing the “assumptions and approaches that have shaped teacher education for over a century” (p. 181). We agree. We speculate that teacher educators speak of a theory-practice divide because they have failed to recognize and accept that two very different epistemologies are present in any program of teacher preparation. We were approaching this recognition when we helped to write the following:

For teacher education and teacher education research, the irony of teaching is at first epistemological. To the uninitiated, teaching unfolds as sets of skills but, to the initiated, teaching depends on, is grounded in, and constitutes knowledge. The character of this knowledge poses the irony for teacher education: the knowledge is, in part, practical, and that part can only be learned in practice, the very setting over which teacher educators have little direct control. Unaccountably, some teacher education research verges on duplicity in this irony: Calls for instructors to have their students teach in a fashion consistent with constructivist accounts of learning are not typically accompanied by clear calls for these instructors to acknowledge anything about how their students will construct their own views of teaching. Constructivism in teacher education seems to apply only to school-age learners and not to the preparation of their teachers. (Munby, Russell, & Martin, pp. 895-896)

We are now ready to recommend that teacher education take the final step of acknowledging and accepting that learning to teach involves two distinct epistemologies. Reframing our perspective as teacher educators to work with dual epistemologies generates opportunities for addressing in new and metacognitive ways the familiar theory-practice divide. It also invites teacher educators to connect theory to their own teaching practices, thereby recognizing that teaching future teachers is itself an act involving dual epistemologies.
5. CONCLUSION
We are not proposing an alternative epistemology but rather an additional one that is uniquely appropriate to learning from experience in practicum placements. Teacher candidates have learned a single epistemology—the traditional academic epistemology of the university—through many years of schooling. Teacher education programs provide many courses that rely on that familiar epistemology but they also provide practicum experiences that are fertile ground for an unfamiliar and unacknowledged epistemology that is anchored in practice and imbued with the authority of experience. As Schön predicted, this change will be challenging but we see it as essential:

All of us who live in research universities are bound up in technical rationality, regardless of our personal attitudes toward it, because it is built into the institutional arrangements—the formal and informal rules and norms—that govern such processes as the screening of candidates for tenure and promotion... Introducing the new scholarship into institutions of higher education means becoming involved in an epistemological battle. (Schön, 1995, p. 32)

Understanding and embracing dual epistemologies holds genuine promise as well as major challenges for teacher educators and the structures of their programs. Teacher candidates need the metacognitive understanding of what it means to be a teacher and how teachers learn from experience. They deserve no less than a significant reframing of the epistemology of teacher education.

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Evaluation of the tutoring process with teachers in elementary schools in Mexico

Juan Manuel Manzano-Torres¹, Leonardo David Glasserman-Morales², and Juanjo Mena³

¹Secretaría de Educación y Cultura del estado de Sonora
manzano_98@hotmail.com

²Tecnológico de Monterrey
glasserman@itesm.mx

³Universidad de Salamanca
juanjo_mena@usal.es

ABSTRACT

This research project is proposed as part of educational reform that started in 2013 in the Mexican Educational System. It responds to the need to constitute a solid program of tutoring, which according to the General Law of Professional Teaching Service (LGSPD) in Mexico, new-entry teachers must receive mentoring during a two-year induction period, in order to strengthen their capacities in the teaching function. Information about the tutoring process will be retrieved through an online journal of professional practice. Based on a mixed method approach the study will review the relationship between teacher and tutor and how this dynamic meets the need of new teachers to solve practical problems. Also, the Mentoring Profile Inventory (MPI) questionnaire was employed with the purpose of recognizing the motivators and challenges that they face. Teachers will answer a questionnaire of satisfaction of the tutorials received. The participating groups in the study correspond to a representative sample of teachers who entered the Professional Teaching Service in August 2016 and the tutors with whom the Educational Authority of the State of Sonora, Mexico has assigned. This study is expected to gather information to evaluate the tutoring program, to identify styles and practices that are more effective in the regional context, to identify the training needs of the new teachers and tutors, to evaluate the effectiveness of the online journal as a tool to follow the tutorials and as a source of information for the continuous improvement of the curriculum of teacher-training schools.

KEYWORDS: Evaluation, tutoring process, mentoring, teachers, elementary schools.

1. INTRODUCTION

Beginning in 2013, Mexico undergoes a major educational transformation as a cause of the structural reform of the educational system promoted by the federal government. The first steps were the promulgation of the General Law of the Professional Teaching Service (LGSPD), which essentially focuses on
the evaluation of teachers for admission, promotion and permanence in the national education system and was given character to evaluate around one million two hundred thousand teachers in a period of three years (DOF, 2013c).

The lack of consensus with the different sectors of society for the design of educational reform and the educational model (Abellan-Fernandez, 2016), especially with teachers and the urgency to show results of evaluations, created an environment in which obligations were omitted and the State acquired them towards new teachers as well as teachers in service who under this same scheme of evaluation got a promotion. We refer to the accompaniment scheme through a tutor.

For the accompaniment to the teachers of new entry, the General Law of the Professional Service (DOF, 2013b), mandates in his article 22:

In order to strengthen the capacities, knowledge and competencies of the newly enrolled teaching staff, during a two-year period, it will be accompanied by a tutor appointed by the Educational Authority or the Decentralized Agency (p.13).

Likewise, the figure of the tutoring is contemplated for the teachers in service who obtain the character of insufficient. Article 53 of the same Law states:

When ... the insufficiency in the performance level of the respective function is identified, the personnel in question will be included in the regularization programs that the Educational Authority or the Decentralized Agency determines. These programs will include the corresponding tutoring scheme (DOF, 2013b, p. 21).

The National Coordination of the Professional Teaching Service implemented the first assessments for admission in 2014 (DOF, 2013a). According to the LGSPD, teachers who were suit for the job would undergo the induction process with the accompaniment of a tutor. This first experience had serious difficulties that are reflected in the satisfaction survey of teachers who participated in the performance evaluation in their second year in the Professional Teaching Service (SPD), which was applied by the National Institute for the Evaluation of Education (INEE, 2016). Report indicated that 57% of new teachers did not receive support from a tutor, 43% answered that they were assigned one; however, 17% had a tutor before the end of the first month of service, 31% had one tutor assigned between the first and second month and 52% were assigned after three months or more. In the same report, 59% of the respondents stated that the tutors showed willingness to carry out the tutorials, 51% said that the accompaniment did not help improve their teaching practice and 52% felt that the tutor was not sufficiently trained to perform the function.
LGSPD includes the figure of the tutor, who previously only existed in the Normal Schools (Secretaría de Educación Pública, 2012), and who is in charge of training future teachers. Aside from the functions mentioned, the tutor aids to promote opportunities for students in training to develop teaching practices in real contexts in order to acquire elements of teaching that enable them to build the bridge between theory and practice.

The way in which tutoring has been understood in the context of teacher-training schools is strongly related to the practice, which González and Fuentes (2011) defines as an opportunity for the future teacher to learn the art of teaching - knowledge for teaching and knowledge in teaching.

In short, there is a national educational system that is traveling through a path where it has little experience. Educational reform is not accepted by different sectors of society because it proposes an educational model that aims to turn the basic education curriculum but in terms of tutoring, it cannot provide sufficient number of tutors to meet the demand nor a clear program of tutor training.

It is urgent to implement clear strategies for the development of tutorials. Although a general framework for the organization and operation of tutoring in basic education was designed (Secretaría de Educación Pública, 2016), the document only indicates the role and duty of tutors. There are no teacher training programs that address the regional characteristics of teachers and their students.

2. THEORETICAL FRAMEWORK

The relationship between theory and practice has its epitome during the last year of formation of the young people who study for teaching and during the first two to four years of service, which according to Torres-Herrera (2005), it is a period when they face tensions and conflicts that define, to a large extent, their professional identity.

The novice teachers begin their professional life cycle trying to give meaning to the theory in practice. This transition from being a student to a teacher responsible for the learning of a group, is the moment where there is the greatest need for tutor accompaniment. This will manifest their beliefs and define their identity. Accompaniment through a tutoring process seems to be the key to ensuring a successful transition.

Teacher training in the last two decades has focused on teacher supervision, both in training and induction (first year of professional practice), since it is considered a crucial activity for improving the quality of Educational practices (Packard, 2003). Basically, tutoring practices are understood as the process of professional mediation of learning in environments of school practice (Orland-
Barak and Klein, 2005; Osula and Irvin, 2009). Trainee mentors (or mentors) are in charge of supervising trainee teachers as well as teachers in the induction period - within schools in order to provide contextualized learning of how to teach (Clarke, 2007; Tannebaum, 2016). Many training programs around the world have begun to focus on mentoring practice as it is seen as an important way of improving the teaching profession by allowing a direct connection with actual practice (Zollo and Winter, 2002). According to Mena and Clarke (2015), research on mentoring have focused primarily on three aspects: 1) the construction of a professional teacher identity (McLean, 1999; Yuan, 2016); between mentor and mentee and 3) the elicitation of a knowledge based on practice for the practice itself. Other authors such as Clarke, Triggs, and Nielsen (2014); Ehrich, Hansford, and Tennet, (2004); Hobson, Ashby, Malderez, and Tomlinson (2009) have calibrated the state of the art in tutoring by reviewing more than 300 research articles. The main conclusions are summarized in the following:

- There are highly complex dimensions associated with the tutoring process and therefore it is necessary that research dedicates efforts to study this process.
- The literature on mentoring is inconsistent and discontinuous, which limits the construction of solid theoretical frameworks.
- Learning that arise from mentoring interactions is especially relevant when teaching to teach.

In short, mentoring practice enhances critical learning, evaluates practice effectively, promotes the development of knowledge and skills (Hudson, 2013) and leads to social transformation (Orland-Barak and Klein, 2005). However, the intricate details of mentoring work are difficult to determine since it is an activity that takes place in formal and informal settings often done on a voluntary and time-consuming basis (Weinberg and Lankau, 2010). In addition, trainee tutors are considered as a kind of school supervisors who are underestimated as teacher trainers (Nielsen, Triggs, Clarke and Collins, 2010). According to authors such as García (2006), Latorre and Blanco (2011), Torres-Herrera (2005), Vélaz de Medrano (2009), Vilca (2016) the identity of teachers and their initial years of service define their professional and teaching style. There is a learning curve that lasts approximately for five years. In this period, new teachers face different situations. They try to bridge the gap between theory and practice, observe the practices of their peers, and insert themselves into school culture. They copy attitudes and pedagogical practices of the teachers with more experience than them. What these researchers
conclude is that it is of supreme importance to support novice teachers in their transition from initial training to professional practice through mentoring.

3. METHODOLOGY.
The study will be addressed through a mixed-type methodology with an explanatory sequential design (Creswell and Plano-Clark, 2007) under a QUAN + QUAL taxonomy (Tashakkori and Teddlie, 2003). The project will be carried out in two stages according to the suggested design.

Quantitative stage: The first stage corresponds to a quantitative study that will select a representative sample of the new primary education teachers in the state of Sonora who entered the Professional Teaching Service (SPD) career system. The SPD databases will be investigated on the results of the competition for entry to basic education, school year 2016-2017 and in the Ministry of Education and Culture of the State of Sonora and on the final places that were assigned in the primary level of the Federal, State and Indigenous Education subsystems. Likewise, information will be requested from this same unit, to know the team of teacher-mentors who will support the new teachers of the sample, during the induction process. At this stage it is proposed to adapt the Mentoring Profile Inventory (MPI) developed by Clarke and Collins (2009) to know how the teacher-mentor perceives his / her work with the novice teachers, specifically on the motivating or rewarding aspects of their work as well as on problematic or challenging conditions.

Qualitative stage: In the second stage, a qualitative study will be carried out where new teachers will write an online journal of professional practice with weekly entries, which will last between three and five months. The journal aims to retrieve information about the aspects of their work that they find particularly motivating or gratifying and those aspects that are problematic or challenging, as well as their concerns, doubts, difficulties, feelings, among other elements of their teaching practice. Similarly, mentors will be able to make recommendations, give advice, share ideas that respond to the needs expressed in mentee's journals. The information retrieved from the journals will be classified and categorized, and used to identify aspects of the work that tutors find particularly motivating or gratifying and those aspects that are problematic or challenging as well as their concerns, doubts, difficulties, feelings, among other aspects of their teaching practice.

4. EXPECTED RESULTS.
The results of the research will be an input to evaluate the tutoring program initiated by the Ministry of Education and Culture of the State of Sonora, Mexico. Relevant questions can be answered to improve the tutoring process,
for example: Does the program help to solve practical problems of teaching and adaptation to the school context faced by new teachers? What are the capacities and areas of knowledge that reflect the greatest need among novice teachers? What tutoring style reflects better results? What are the training needs that must be met by the teachers who will play the role of tutor? What elements of the school context represent challenges for new teachers? The results of the study will serve as an indicator for teacher training schools, which in the light of the findings will be able to make decisions on how to solve the areas of training that are more urgent to attend to the profiles of the new teachers.

For the Ministry of Education and Culture of the State of Sonora in Mexico, the information will be of exceptional value because the online journal will serve as a monitoring tool and continuous program evaluation, and may use resources to make adjustments during the implementation of the program, such as: short workshops to promote the development of skills and strengthen areas of knowledge needed to meet the needs that new teachers manifests in their records in the journal of professional practice.

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Perspectives of teachers on the reputation of their profession in society

Barbara Šteh¹, Jana Kalin², and Renata Čepić³

¹ University of Ljubljana
barbara.steh@ff.uni-lj.si
² University of Ljubljana
jana.kalin@guest.arnes.si
³ University of Rijeka
renata.cepic@uniri.hr

ABSTRACT
When researching the work and professional development of teachers, we must keep in mind teachers’ work and life in a specific social environment in which they are contributing to the well-being of both the individuals and the entire community. Within this context, teachers recognise the value of their work and reputation of their profession. Various international reports and studies suggest that the role of teachers is becoming more demanding and more complex, and that their responsibilities are increasing, while on the other hand, their reputation in society, when compared to other professions, is stagnant or even declining. However, it should be noted that the reputation of the teaching profession is not the same in all countries. This then begs the question of the key factors contributing to this. We assume that the teachers’ professional activity, among other things, affects how they perceive their role and position in the society. In this paper we present the points of view of elementary school teachers on the reputation of their profession. We designed a questionnaire that we applied to a representative sample of Slovenian and Croatian teachers, and analysed the differences. The study included a total of 1,867 teachers, 764 from Slovenia and 1,103 from Croatia. It was found that Croatian elementary school teachers, unlike their Slovenian colleagues, believe that the teaching profession enjoys a lower reputation, and that both Croatian and Slovenian teachers rate preschool teaching and their own profession of elementary school teaching as having a lower status.

KEYWORDS: elementary school teachers, professionalism, reputation of teaching profession

1. INTRODUCTION
Various international reports and studies on the teaching profession suggest that the role of teachers has become more demanding and complex, and that it entails reflective thinking, continuing professional development, autonomy, responsibility, research, and personal judgements (e.g. Policy Paper on Education, 2011; Handbook of good human resource practices in the teaching
profession, 2012; Vermunt, 2014), while on the other hand, their reputation in society, compared to other professions, has either stagnated or decreased. The results of research clearly show that the reputation is associated with quality education, socio-cultural and economic contexts, job security, salaries and working conditions, teachers’ professional development, professional autonomy, involvement in decision-making (Hargreaves et al., 2006; Monteiro, 2015; Symeonidis, 2015). In this paper we will mainly be interested in teachers’ views on the reputation of their profession in society.

2. THEORETICAL FRAMEWORK

When considering some of the conceptual issues regarding the professionalism of teachers, Monteiro (2015) highlights four main factors in the determination of the level of professionalism: value of service (the importance for individuals and society of the scope of professional expertise), identity content (formed by the knowledge, values and qualities that distinguish a profession), professional autonomy (the independence and responsibility with which the profession may be individually practised and collectively governed), and professional and social status (which results from the previous factors and is reflected in the income, influence and prestige of the profession). Monteiro (2015) emphasises that the highest level of professionalism is applied to the professions that have the highest social importance, responsibility, and recognition.

Hoyle (2001) offers a three-component definition of occupational status, according to which the prestige, status, and esteem of the profession are three different aspects of professional status. He therefore suggests that occupational prestige refers to status, which is defined by public opinion, occupational status is defined by educational and comparable professions, and occupational esteem, which refers to the perception of the profession by the general public due to the personal qualities that individuals demonstrate when performing basic tasks.

The ILO/UNESCO (1997) report, published twenty years ago, has remained relevant to this day. It highlights some of the general causes of the decline of teachers’ status: poor communication with the government and a reduction of public funds for education; a neglect of the promotion of the teaching status and professionalism; the perception of the community of the inefficiency of teachers in achieving educational outcomes; and a reduction in the general perception of society of the quality and value of public education.

Based on numerous studies (Fuller, Goodwyn & Francis-Brophy, 2013; Hargreaves, et al., 2006; Hoyle, 2001; Monteiro, 2015; Symeonidis, 2015; Verhoeven, Aelterman, Rots & Buvens, 2006), we can extract the following factors that particularly adversely affect the reputation of teachers: low teacher salaries, low living standards, the feminisation and depersonalisation of the
profession, insufficient autonomy and exclusion from education policies, a lack of incentives for career advancement. Some authors (e.g. Monteiro, 2015) have stressed that the teaching profession is perhaps the profession that is most exposed to public opinion – such visibility puts it in a position of greater exposure to criticism and increasing social consequences in case of failure and the mediocrity of bad teachers. MacBeath (2012) observes that teachers are burdened with excessive expectations that society places before them and are caught between high expectations and low professional respect. Unfavourable working conditions also have a negative impact on the reputation of the teaching profession (large and very heterogeneous classes, the constant increase and expansion of programmes, task overload and lack of funds, aggressiveness of pupils and parents, etc.). When researching teacher status, it is necessary to consider contextual factors, such as basic social issues in relation to the social, moral, and political dimensions of schooling, the characteristics of the education system, and the organisation of schools. All this specifically (co-)determines the role of teachers in various countries across the globe.

Unlike countries such as Scotland, Ireland, Sweden, Finland, and Iceland, in which the teaching profession enjoys good social status, the status of teachers in England, France, Germany, the US, New Zealand, and Austria is not as favourable (Verin, 2004). Some studies conducted in Croatia (Radeka & Sorić, 2006) also point to the dissatisfaction of teachers with their social reputation. Imamović (2014) determined on a sample of Slovenian teachers that teachers rank themselves lower on the scale of the importance of occupations than the parents of their students. It is worth considering how teachers perceive their position in society and the importance attributed to them.

3. AIM OF THE RESEARCH
In this research, we tried to establish the point of view of elementary school teachers on the reputation of the teaching profession in society and to rank the level of the reputation of elementary school teachers in relation to the reputation of other professions. Also, we were interested in the differences in responses between Croatian and Slovenian teachers.

4. METHODOLOGY
The scale of reputation was constructed based on the review of theory and previous research on teacher reputation. We included four positive and four negative statements about the reputation of teachers, which were listed alternatively in the questionnaire. The statements related to the general attitudes about the reputation of teachers and the importance of teachers’ work with regard to society, the respect and relationship of parents, students, and
teachers towards teachers, and the financial dimension of the profession. The teachers were asked to evaluate their level of agreement with the statements on a five-point Likert scale (1 – strongly disagree, 2 – disagree, 3 – partly agree, 4 – agree, 5 – strongly agree).

Furthermore, we asked the teachers to classify ten professions (preschool teacher, elementary school teacher, high-school teacher, university teacher, doctor, nurse, lawyer, entrepreneur, journalist, and stage actor) with regard to the degree of reputation on a scale from 1 to 10, where 1 means the least respected profession and 10 the most respected profession in society.

We distributed the questionnaire to a representative sample of Slovenian and Croatian teachers and analysed the differences. The study included a total of 1,867 teachers (764 Slovenian and 1,103 Croatian teachers correctly filled in the questionnaire).

5. RESULTS AND DISCUSSION

5.1. Attitudes of teachers about the reputation of their profession

We determined what views elementary school teachers hold about the reputation of the teaching profession. Concerning positive statements about teaching reputation, the entire sample of the teachers largely agrees that the work of teachers is among the most important ones in society (M = 4.15), which is in line with our expectations. Croatian teachers agree to a significantly higher degree with this statement than Slovenian teachers (M = 4.25 : M = 4.01). Teachers agree to a somewhat lesser degree with the statement that the teaching profession provides a regular income and financial independence (M = 3.32), although the majority of the teachers in the sample has a permanent employment contract. There are also statistically significant differences between Croatian and Slovenian teachers, which in turn can probably be attributed to the weaker economic situation in Croatia. Croatian teachers believe to a lesser extent that the teaching profession provides regular income (M = 3.10 : M = 3.62).

In the entire sample, the teachers least agree with the statement that parents respect teachers (M = 2.66) and that students respect teachers (M = 2.91). Again, there are significant differences between Croatian and Slovenian teachers. In both cases Slovenian teachers on average agree more that parents (M = 2.71 : M = 2.62) and students (M = 3.00 : M = 2.85) respect teachers. In this context we mention Verhoeven et al. (2006), who points out that a certain degree of responsibility for societal reputation lies in the hands of teachers and that through their professional activity they can certainly contribute to achieving greater respect among their students and parents.

Croatian teachers agree to a greater extent than Slovenian teachers with the statement that teaching is amongst the most important professions in society,
while on the other hand, they believe to an even greater extent that teaching
has a low reputation in society and is paid less than other equally demanding
professions. Furthermore, Croatian teachers agree to a lesser extent than
Slovenian teachers that their occupation provides regular income and financial
independence, as well as that the parents and students respect them.
Among the negative statements about teachers’ reputation, the teachers in the
entire sample agree to the greatest degree that the teaching profession has a
low reputation in society (M = 4.28); here Croatian teachers achieved a
statistically significantly higher average rate than Slovenian ones (M = 4.39 : M
= 4.13). Research has revealed that Croatian teachers achieve on average
higher scores on the Scale of low reputation when compared to Slovenian
teachers (M = 4.01 : M = 3.83) and the differences are statistically significant.
For the statements which form the Scale of low reputation the difference
between Croatian and Slovenian teachers proved to be statistically significant in
all the statements except one – “The low reputation of the teaching profession
affects my satisfaction with work.” On average, teachers tend to agree with this
statement (the average rate for the entire sample was 3.74).
From the average score it is evident teachers agree that they receive lower
salaries than other equally demanding professions with the same level of
education (M = 4.23). At this statement Croatian teachers achieved the highest
average score of agreement, which also statistically significantly differs from
that of Slovenian teachers (M = 4.42 : M = 3.97), probably due to a worse
economic situation in Croatia and lower average salaries of elementary school
teachers.
Slovenian teachers agree statistically significantly more with the statement that
the media usually portrays teachers in a negative light (M = 3.56 : M = 3.44).
This raises the question of what teachers can do to improve their reputation in
society in terms of promoting their status. In this regard, it can be highlighted
that Croatian teachers perceive their reputation in society as being lower than
Slovenian teachers, which signals the existence of numerous factors that are
reflected on the teachers’ self-assessment of their profession’s reputation.

5.2. Teachers’ ranking of their profession in the context of other professions

We were interested to know how elementary school teachers rank the
reputation of their profession compared to the reputation of other professions.
We differentiated ten professions (preschool teacher, elementary school
teacher, high-school teacher, university teacher, doctor, nurse, lawyer,
entrepreneur, journalist, and stage actor) with regard to the degree of
reputation.
It was determined that on the scale of reputation both Croatian and Slovenian teachers rank highest the profession of doctors, then lawyers and entrepreneurs. The reputation of doctors in the Slovenian subsample has an even higher average ranking in comparison with the Croatian subsample of teachers (M = 8.14 : M = 7.85). On the other hand, the reputation of entrepreneurs has a significantly higher average rank in the Croatian subsample (M = 7.07 : M = 6.62). The results may not be surprising in an increasingly consumer-oriented society, where a good economic status and material goods rank high on the scale of values.

According to the estimates of elementary school teachers, the profession of a university teacher ranks fourth and occupies a somewhat better position among Slovenian teachers compared to Croatian teachers (M = 6.45 : M = 6.23). Both Croatian and Slovenian teachers rank theatre actors and journalists in the middle of the scale of reputation, whereby Slovenian teachers rank journalists slightly better (M = 5.26 : M = 5.01), which may be surprising given that Slovenian teachers largely agree that the media usually show teachers in a negative light.

As it was expected, the following professions can be found in the bottom part of the scale: high-school teacher, nurse, and elementary school teacher with the preschool teacher in the last place. It is interesting that Croatian teachers ranked the reputation of nurses higher than high-school teachers (M = 4.76 : M = 4.55), while Slovenian teachers, contrary to this, on average ranked high-school teachers higher than nurses (M = 4.89 : M = 4.00). Due to this, there are statistically significant differences between the two subsamples. Croatian and Slovenian teachers ranked on average the reputation of preschool teachers the lowest, while they ranked their own profession second, with the occupation of elementary school teachers as having a slightly better average ranking in the Slovenian subsample compared to the Croatian subsample (M = 3.94 : M = 3.61). In accordance with the results of other studies, it is not surprising that Croatian and Slovenian teachers ranked preschool teachers and elementary school teachers the lowest. The lower status is perceived more often in the field of early childhood education and care, as well as vocational training, and the work of additional teaching staff (Monteiro, 2015). Preschool teachers, teachers in vocational education, and additional teaching staff are associated with a lower professional status compared to other sectors, especially higher education. It is known that preschool and the elementary school education is dominated by women, but research has found connections between professional status and salary as well as the existence of a connection between the feminisation of the teaching profession, low reputation, and reduced salaries.
6. CONCLUSIONS
Analysed questions about the reputation of teachers in society are connected to questions about teaching professionalism. However, they are sufficient to establish that the centre of educational priorities is the improvement of the generally low economic status and situation of the teaching profession in society, the recognition of teachers as equal partners in the creation of educational policies, and the improvement of the quality of the initial and continuing professional education of teachers.

If we want to have a positive impact on the improvement of teachers’ reputation in society, it is necessary to take measures to improve the level of the attractiveness of this profession. This means motivating the most talented to enter the profession and remain in it, including the attractiveness of the workplace, and adequate care for the career, professional advancement, and continuous professional development. In particular, the question arises concerning the quality of teachers’ work in the context of creating educational policies that stimulate further development of the teaching profession. Many of these policies are focused on the definition and development of the indicators that promote quality teachers and their education, as well as their social status. Most analysts (e.g. Sahlberg, 2012) note that excellent teachers play a key role in this. From successful Finnish practices the following should be mentioned: the development of teacher education programmes; significant financial support for teacher education and professional development; reasonable and fair salaries and stimulating working conditions; the creation of an esteemed profession in which teachers have considerable authority and autonomy, including the responsibility for determining the curriculum and assessment of students, which leads them to continuous analysis and improvement of practices. Teachers should become an example of professional excellence which, according to Monteiro (2015), should be understood as the embodiment of quality, value, and knowledge. Undoubtedly, a certain degree of responsibility for the reputation in society is on teachers themselves, and they can certainly contribute to a greater respect of students and parents for them and their work through the quality and excellence in their professional activity. It should be expected that the dynamic changes taking place in our environment will impose the need for action in the direction of improving teachers’ reputation in society.

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PERSPECTIVES OF TEACHERS ON THE REPUTATION OF THEIR PROFESSION IN SOCIETY


Rethinking modeling in pre-service teacher education: implications for teacher educators

Manuel Goizueta1, Helena Montenegro Maggio2, Francisco Rojas Sateler3 and María Paz González Vallejos4

1Pontificia Universidad Católica de Valparaíso
mgoizueta@gmail.com
2Pontificia Universidad Católica de Chile
hlmonten@uc.cl
3Pontificia Universidad Católica de Chile
frojass@uc.cl
4Universidad Alberto Hurtado-Universidad Diego Portales
mpgonzav@uc.cl

ABSTRACT
Whether intentionally or not, when teacher educators teach pre-service teachers, they enact teaching. Therefore, the importance of the teacher educator as a role model cannot be underestimated. This paper reports a theoretical discussion within an ongoing research project aimed at understanding the knowledge base and modeling practices of mathematics teacher educators. We revisit and problematize the concept of 'modeling' taking into account what is modeled by teacher educators and how it is translated into teaching practices.

We employed a qualitative research approach analyzing our theoretical positioning throughout our research project. The data sources for this study were audio recordings of several meetings held by the research group to review the literature on the subject and the discussion of the script of the interview focused on the knowledge base and teaching practices of mathematics teacher educators.

Based on the re-conceptualization of 'modeling,' we put forward purposeful explicit modeling (p+e modeling) in relation to the student teacher as a relevant instructional practice that, when enacted by teacher educators, might provide learning opportunities to student teachers and promote awareness of and reflection on teaching practices as integral dimensions of teaching. Finally, a future research agenda is proposed.

KEYWORDS: Modeling, Teacher educators, Collaborative situated teaching

1. INTRODUCTION
Pre-service teacher education is widely recognized as a key element of educational systems to enhance teaching quality. Despite various initiatives, pre-service teacher education (P-STE) in Chile is still a problematic area in which expected changes have not taken place. (Mineduc, 2005; OECD, 2004)
This is so in part because research in Chile has been mainly focused on curriculum-related issues, neglecting teacher educator’s (TE) role and practices and leaving them relatively unresearched (Domínguez & Meckes, 2011; OECD, 2009; Sotomayor & Gysling, 2011), especially regarding primary teacher education (Cisternas, 2011; González, 2015; Montenegro, 2016). We should better understand TEs' classroom practices in order to improve educational outcomes both in P-STE and in school. One way to fruitfully approach TE practices is through the notion of modeling. Luenenberg, Korthagen and Swennen (2007) define modeling by TE as “the practice of intentionally displaying certain teaching behavior with the aim of promoting student teachers’ professional learning” (p. 589).

In the last two decades, some researchers have been paying attention to modeling by TEs. However, they have approached modeling in a fragmented way, without recognizing that it is a situated practice mediated by the TE. Their studies tend to focus on how TEs model (i.e. on what TEs do), but not so much on what is actually modeled (i.e. the content of the practice).

This paper reports a theoretical discussion about the notion of modeling within an on-going research project aimed at understanding the knowledge basis and modeling practices of mathematics TEs. Modeling is problematized building on the available bibliography and on the research group members' experience as TEs, taking into account what is modeled by TEs and how it is translated into teaching practices in particular contexts. The aim of this paper is to disclose the meanings collaboratively built by the research group as a way to contribute to the growing body of knowledge about modeling by TEs, and to propose a more encompassing notion of modeling.

2. THEORETICAL FRAMEWORK

Whether intentionally or not, when TEs teach pre-service teachers, they necessarily enact teaching. That is, they are an actualized model of the professional practice of teaching (Boyd, 2014; Korthagen, Loughran, & Lunenberg, 2005; Loughran, 2006). This makes teaching and learning how to teach a challenging experience and sets TEs and pre-service teachers in a class unlike other. As a consequence, the importance of the TE as a role model in the classroom cannot be underestimated (Boyd, 2014; Goodwin & Kosnik, 2013; Korthagen, Loughran, & Lunenberg, 2005; Loughran, 2006).

Luenenberg et al. (2007) identify four forms of modeling: implicit modeling; explicit modeling; explicit modeling and facilitating the translation to the student teachers’ own practices, and connecting exemplary behavior with theory. These modeling forms vary according to the degree of explicitness, the relationship between theory and practice and the role of the student teacher in
this process (Boyd, 2014; Lunenberg, et al., 2007; Swennen, Lunenberg, & Korthagen, 2008).

According to a number of researchers, different related issues make modeling by TEs a relevant matter for educational research: i) little seems to be known about what and how TEs implicitly model as part of their actual teaching practices (Korthagen, et al., 2005; Loughran, 2006; Lunenberg, et al., 2007), ii) developing a congruent role model (i.e. relative to endorsed views/theories on education) for their student teachers is a challenging task for TEs (Bullock, 2009; Russell, 1997; Swennen, et al., 2008), and iii) modeling of particular teaching practices might be a powerful way to teach pre-service teachers how to teach (Loughran, 2006).

Even though these are relevant aspects of modeling, they focus research on TE’s performance, somehow leaving students aside, or even invisibilizing them as the necessary counterpart of the TE’s educational aims and actions. Moreover, such focus does not take into account the context (institutional, cultural and social) in which modeling occurs, and how modeling relates to broader aspects of such context. As noted by Boyd (2014), the workplace setting and quality assurance context influences what is modeled by TEs. Consequently, previous approaches to modeling have operational limitations when observing actual classrooms and lead to a number of difficulties for methodological designs aiming at the empirical study of modeling by TEs from a socio-cultural perspective.

Jaworski (2008) suggests that, as a way to improve learning in P-STE, it is necessary to promote activities that reflectively raise awareness among TEs and their students about the complexity and nuances of teaching practices. Our aim is to re-conceptualize modeling as a collaborative self-reflective task that might not just improve learning, but also allow the construction of participative teaching cultures in which both TEs and pre-service teachers are (and feel) involved.

3. METHODOLOGY
The qualitative empirical study we present here revolves around theoretical discussions held by the research group regarding modeling, as part of a larger research project aimed at understanding the knowledge basis and modeling practices of mathematics TEs. The group is formed by two female and two male researchers with different professional and disciplinary backgrounds—psychologist, primary teacher, mathematician, and secondary mathematics teacher—. All of them have experience as TEs in pre-service teacher education programs (2-10 years), and as educational researchers (3-7 years).
During the initial stage of the research project, the group held four two-hour-long meetings to i) review and study four key articles on modeling: Boyd, 2014; Jaworski, 2008; Loughran & Berry, 2005; Lunenberg, et al., 2007; Swennen, et al., 2008, ii) construct the script for an interview focused on the knowledge base and teaching practices of mathematics TEs, and iii) discuss feedback by expert judges regarding the script of the interview. It was in relation to these three activities that the efforts of the group to understand, deepen and reformulate the notion of modeling developed. The collaborative revision of the notion of modeling served the theoretical necessity of adequately framing the research project, but also the methodological necessity of constructing a theoretically-coherent interview script to empirically investigate mathematics TE’s practices in relation to modeling. The data corpus for this study is formed by audio-recordings of these four working meetings.

Data were analyzed at two levels to understand and compare each researcher’s positioning towards modeling, as was expressed during group meetings. Firstly, we individually analyzed the different data sources to develop initial code systems. Secondly, in order to avoid idiosyncratic biases, and to determine intercoding reliability, we shared our initial code systems and agreed on a refined common one, which was used for further axial codification (Strauss & Corbin, 1998). Constant comparison method (Glaser & Strauss, 1965) was applied to explore and account for conversational moments within the four group meetings in which the same aspect of modeling was addressed. The process came to an end with the theoretical saturation of data (Strauss & Corbin, 1998); that is, when no new codes were needed to account for the data, and we had codified all data regarding emergent categories. Finally, we articulated the analysis process in order to thematically account for its most relevant aspects (van Manen, 1990).

4. RESULTS

This section shares the most valuable results found in the analysis of the data corpus. Through our collective analysis, we discerned three key elements in the practice of modeling by TEs. Even though they will be presented separately below, they overlap and have an impact on each other.

4.1. Modeling in relation to the student teacher

When TEs teach inside teacher education, the primary focus is on the learning of the student teachers. In order to use modeling as a teaching tool, student teachers must be aware of what is being modeled; that is, attention should be directed towards the practice(s) being modeled by the TE. Thus, a relevant element of modeling is to see teaching and learning from the perspective of the
RETHINKING MODELING IN PRE-SERVICE TEACHER EDUCATION: IMPLICATIONS FOR TEACHER EDUCATORS

Student teachers, highlighting what is worth and important to pay attention to, reflect on and learn. Moving towards a more explicit modeling might help student teachers to realize and clarify their learning experiences. However, this level of explicitness is a challenge for the TE, as can be observed in the following quotation:

R3: What I am trying to say is that we might need to give it [implicit modeling] a twist.
R4: Yes, but once you give it the twist, it is not implicit anymore. It becomes explicit…
R1: OK, but be careful: it is not implicit; when you twist it, it is no longer implicit for the teacher educator; but that doesn’t mean it is explicit for the student… So, from whose perspective are we defining implicit and explicit modeling? In relation to observable behavior or explicit pedagogical reasoning? (Researchers 1, 3 and 4; Group Discussion 2).

4.2. Planning modeling as a collaborative task

Enacting modeling in alignment with one's pedagogical reasoning requires planning, due to the fact that congruent teaching does not come naturally or spontaneously. In addition, sharing the purposes under teaching practices with others is a complex and difficult task. In order to have a clear pedagogical purpose, TEs' modeling should be carefully articulated through systematic, reflective practice. The following quote describes the aforementioned issue:

R2: When we are in the classroom, we put into practice what we believe in; but we don’t do it in a purposive way, in alignment with our reflection… Despite believing that something must be done in a certain way, when I’m actually doing it I’m not necessarily congruent…
R1: Right. That is the thing: If I make my pedagogical reasoning more explicit, then I reflect more about it. If I make [the modeling] more explicit, then I have more opportunities to inform my practice, to adequate it (Researchers 1 y 2; Group Discussion 1).

To encourage this reflective practice, TEs require working collaboratively with other TEs in order to develop new insights and knowledge for teaching. Likewise, they might discuss their modeling practices with student teachers with the aim of exploring their own teaching practices through the student teachers’ eyes.

4.3. Modeling to increase awareness about teaching and learning practices

Explicit and purposive modeling demands awareness amongst TEs of the influence they have on their student teachers’ teaching practices. Furthermore, TEs need to develop awareness of the particularities of pre-service teacher
education but also of school classrooms, where student teachers will work. However, TEs are frequently unaware of their role as models, as the next quotation suggests:

R3: As an anecdote, let me tell you that during my doctoral research when I asked my interviewees “How do you teach to teach?” all teacher educators stood silent for ten seconds; because it was like a blow to them… In fact, many of them said: “This is the first time I think about it.” “I had not realized”… (Researcher 3; Group Discussion 4).

It seems reasonable to suggest that a focus on becoming aware is important for both TEs and student teachers. In fact, if TEs reflectively examine and reframe the teaching situation with their student teachers, they might offer insights into the experience from new perspectives, and begin to develop their and their student teachers' awareness of the teaching context and practices.

5. IMPLICATIONS/DISCUSSION

If we assume that different teaching models might impact differently on pre-service teachers’ learning and future practices, the necessity for TEs to make conscious decisions about how they teach in order to enact and promote a (perhaps socially demanded) model becomes evident (Loughran, 2006; Lunenberg, et al., 2007; Swennen, et al., 2008). Within our research project, we are interested in understanding how TEs deploy, articulate and make available pedagogical knowledge to their students while they teach how to teach through modeling teaching. The discussions about modeling within the research group have led to identify three key elements -explicitness, purposiveness, and awareness-, and to suggest the need for a more encompassing notion to account for actual classroom practices.

In order to research modeling by TEs, it is necessary to consider student teacher's perspective. That is, modeling cannot be considered solely in relation to the TE's actions; it is also necessary to understand how student teachers get involved with those actions. This suggests that the TE should take into account how his/her teacher students perceive his/her teaching, and direct attention to the elements he/she wants them to notice. Thus, modeling is better understood as a collaborative practice in which both TEs and student teachers participate.

In order to make explicit the connections between teaching practices and pedagogical knowledge, modeling also demands planning of and reflection on actual teaching practices. This suggests that implementing modeling in the classroom requires from the TE reflection on his/her teaching practices as a constitutive part of teaching. Thus, modeling could be understood as reflective
practice, through which the TE can become critically aware of his/her teaching and its relationship with pedagogical knowledge underpinning it. This discussions leads us to put forward purposive explicit modeling (p+e modeling) in relation to the student teacher as a relevant teaching practice. When TEs enact p+e modeling, they might provide learning opportunities to student teachers and promote awareness of and reflection on teaching practices as basic dimensions of teaching. In this context, the student teacher learns about teaching in a more complex and situated manner. While guiding student teachers to understand the pedagogical purposes underlying teaching practices, the TE might explicitly bridge such practices and those of his/her teacher student. This way, student teachers might develop new insights related to the complexity of learning to teach.

6. CONCLUSIONS
Re-thinking modeling in pre-service teacher education implies not just theorizing about modeling; from our point of view, it sets a research agenda to explore TEs' and student teachers' collaborative teaching practices. This agenda poses the challenge of studying modeling from a situated perspective, including both the TE and student teacher's perspective in a more comprehensive and interrelated way. Considering modeling in a broader way, as sketched here, also implies researching how modeling evolves as TEs learn about and become aware of their own teaching practices. More research is needed to understand how modeling might foster the construction of more reflexive and participative teaching cultures.

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Pedagogical confrontations as a lens for reflective practice in teacher education

Wendy Moran¹, Robyn Brandenburg², and Sharon McDonough³

¹Australian Catholic University
wendy.moran@acu.edu.au
²Federation University Australia
r.brandenburg@federation.edu.au
³Federation University Australia
s.mcdonough@federation.edu.au

ABSTRACT
Being a teacher educator is complex and “sophisticated business”. Extant literature reveals that reflective practice plays an integral role in understanding teacher educators’ work. This paper focuses on pedagogical confrontations as a lens for reflective practice to reveal the complexity of teacher educators’ work. The term ‘pedagogical confrontations’ (PCs) signifies incidents, interactions or events in teaching which cause us to pause and critically examine our practice. In this research we examine the context, descriptions and responses of participant-identified pedagogical confrontations. Through independent and collaborative analysis of the confrontations we identify three key themes: 1) Professional roles; 2) The importance of relationships; and 3) The changing nature of universities and teacher education. Using PCs as a lens for reflective practice reveals the relationship between one’s values and pedagogical practices and we contend that recognition and deeper knowledge of this relationship leads to richer understandings of teacher educators’ work.

KEYWORDS: reflective practice, pedagogical confrontations, teacher educators.

1. INTRODUCTION
Teacher educators engage in multi-dimensional work as they prepare pre-service teachers for the transition to the teaching profession. Teacher educator work is underpinned by both personal and professional values that interplay with contextual factors and demands, leading teacher educators to experience ‘pedagogical confrontations’ (PCs). This paper highlights that in using a PC as a lens for reflective practice, values held by a teacher educator are revealed, relationships between pedagogical practices and values are identified, and more deliberate and intentional decision-making is made possible.
2. CONCEPTUAL FRAMEWORK
The notion that teacher educators’ work is sophisticated and complex has been highlighted by MacKinnon and Bullock (2016) who argue that it requires “engaging with practice beyond the technical” and bringing to the “surface the sophisticated thinking, decision making and pedagogical reasoning that underpins pedagogical expertise” (p. 292). This is further supported by Nyamupangedengu and Lelliott (2016) who contend that teacher education comprises three aspects, including the “content to be taught, how it is taught and the thinking and pedagogical reasoning behind the teaching that is employed” (p. 86). Engaging in their work and revealing the complexity of teaching, requires teacher educators to use “the cauldron of practice to expose pedagogy (especially one’s own) to scrutiny” (MacKinnon & Bullock, 2016, p. 292). This scrutiny requires an examination of the personal and professional values, that, according to Brandenburg and McDonough (2017), “are manifested in our professional actions, pedagogy and practice” (p. 234). We contend that the examination of PCs provides a useful lens for analysing the interplay of professional actions, pedagogy and practice and the values that underpin them.

2.1. Pedagogical Confrontations
PCs are found within the teaching context and represent incidents, interactions or events which cause educators to pause and critically examine their practice (Brandenburg, McDonough & Moran, 2016). PCs may be philosophical, political, ethical, emotional and/or organisational in nature, and while they are typically grounded in everyday practice, they are unanticipated. PCs derive from the body of work that identifies and scrutinizes “critical incidents” (Brandenburg, 2008; Brookfield, 1995; Tripp, 2012). While the term ‘critical incident’ has multiple interpretations, it is widely accepted that critical incidents describe events to which there is no immediate resolution. PCs are distinctively different to critical incidents however, in that their focus is grounded in pedagogical practice. A pedagogical confrontation provokes, as it challenges teachers’ beliefs, ethics, emotions, or philosophies about the approaches they employ.

Drawing on PCs as a lens for reflection we identify the interconnections between personal and professional values and the pedagogy and practice of teacher educators as demonstrated in Figure 1.
3. METHODOLOGY
This paper draws on data provided by 12 educators from six countries including: Australia, Iceland, New Zealand, South Africa, UK and USA, with participants responding to questions related to a self-identified PC. Using an adapted version of Kosnik’s (2001) Critical Incident Analysis Framework participants provided a detailed description of the context and incident, reflected on the values inherent in the situation, and explained their response. This paper focuses on the nature of the PCs shared, the way the values interacted with the PCs, and suggests possible explanations for the variation in participant responses.
Data analysis occurred in two phases: 1) Independent coding of key concepts, words and phrases; 2) Collaborative sharing of analyses and generation of key themes (Lankshear & Knobel, 2004). Collectively, points of convergence and dissonance were identified in order to enhance trustworthiness in the analysis process (LaBoskey, 2004) resulting in the identification of three key themes that characterised the nature of the PCs experienced by participants. The themes identified were:
- Professional roles (PR)
- The importance of relationships (R)
- The changing nature of universities and teacher education (CN)
4. DISCUSSION OF RESULTS
The following table provides a summary of the participants’ (pseudonyms) PCs, years of teaching experience, PC title, and the theme.

<table>
<thead>
<tr>
<th>Name</th>
<th>Years of experience</th>
<th>Title</th>
<th>Theme</th>
<th>Description of Pedagogical Confrontation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sam</td>
<td>25</td>
<td>Clouded futures</td>
<td>CN</td>
<td>Teacher education hierarchy accused Sam of being divisive, resistant to change and negative when she objected to the dismissal of her working party’s program development ideas.</td>
</tr>
<tr>
<td>Mark</td>
<td>35</td>
<td>Cognitive dissonance</td>
<td>CN</td>
<td>A teacher in Mark’s class questioned his choice of learning techniques and methods claiming that Marks’ pedagogical approach wasn’t supported or endorsed in their schools.</td>
</tr>
<tr>
<td>Tori</td>
<td>10</td>
<td>Deepening pedagogical relationships</td>
<td>R</td>
<td>Tori endeavoured to build relationships with all her students, however circumstances often created opportunities where deeper connections were forged with only some students.</td>
</tr>
<tr>
<td>Sasha</td>
<td>15</td>
<td>Value of professional behaviour in PSTs</td>
<td>PR</td>
<td>Poor attendance, punctuality, participation and a lack of courtesy from one student in a teacher education course led Sasha to question his responsibilities in ensuring professional values and quality teachers.</td>
</tr>
<tr>
<td>Kerry</td>
<td>20</td>
<td>This course is a waste of time</td>
<td>PR</td>
<td>A PST objected to Kerry’s methods in literacy teaching claiming that she was not learning anything and the course was a waste of time.</td>
</tr>
<tr>
<td>Jennie</td>
<td>10</td>
<td>Do as I say, not as I do</td>
<td>PR</td>
<td>Jennie, burdened by a heavy workload, was unable to return assessments in the timely manner she had always demonstrated. Jennie felt she had not modelled good practice and in light of this reconsidered the fairness of her students’ workload.</td>
</tr>
<tr>
<td>Clara</td>
<td>5</td>
<td>Digital conformity: a form of pedagogy</td>
<td>CN</td>
<td>A university declaration required a blended learning course to change to mostly on-line and left Clara concerned about how her strengths as a teacher would translate into this new model.</td>
</tr>
<tr>
<td>Nick</td>
<td>8</td>
<td>Please just tell me what to do</td>
<td>R</td>
<td>Supervision of a masters’ student and the value of developing research autonomy was made difficult when the student pleaded for a more directed approach.</td>
</tr>
<tr>
<td>Jack</td>
<td>16</td>
<td>A question of sensitivity</td>
<td>PR</td>
<td>Objections were raised by some students in Jack’s class that his illustrative story, relating to an experienced Physics teacher who requested help from elementary teachers, was offensive. Jack</td>
</tr>
</tbody>
</table>
PEDAGOGICAL CONFRONTATIONS AS A LENS FOR REFLECTIVE PRACTICE IN TEACHER EDUCATION

<table>
<thead>
<tr>
<th>Name</th>
<th>Years of experience</th>
<th>Title</th>
<th>Theme</th>
<th>Description of Pedagogical Confrontation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harry</td>
<td>6</td>
<td><em>When rhetoric doesn’t match reality.</em></td>
<td>R/CN</td>
<td>considered how to deal with the potential sensitivities in every class.</td>
</tr>
<tr>
<td>Ruth</td>
<td>23</td>
<td><em>Online does not mean whatever</em></td>
<td>PR/R/CN</td>
<td>Harry felt frustrated and angry by the university’s favouring of ‘economics’ over their own rhetoric concerning relationships with schools and quality teacher education courses.</td>
</tr>
<tr>
<td>Ray</td>
<td>22</td>
<td><em>Academic Director or Arrogant Dictator</em></td>
<td>PR/CN</td>
<td>A doctoral student repeatedly failed to complete online assignments on time, or correctly, and didn’t respond to offers of assistance. Ruth felt that a face-to-face course would have enabled earlier and more effective intervention.</td>
</tr>
</tbody>
</table>

Table 1: Brief descriptions of the pedagogical confrontations

While the majority of the PCs aligned exclusively with one theme, two participants’ PCs were classified into two themes (Ray and Harry) and one PC was representative of all three (Ruth). In the next section, we discuss the three themes.

4.1. Professional role

I am a teacher educator - this is not my 'job', it is a part of me, yesterday, today and tomorrow. (Ray)

Analysis of the data indicates that six of the PCs focused on how teacher educators understood and enacted their professional roles, with Ray, above, suggesting that being a teacher educator is more than a ‘job’, and that his professional role is a core element of his identity. Ray’s PC confirms his view of the role and responsibilities of a teacher educator as he defends continuing his broader subject focus despite the demands to narrow it. Ruth, in a different context to Ray, also undertakes actions that reflect her understanding of her professional role when teaching in an online doctoral program. Her PC highlights the clash between her belief that face-to-face teaching is more effective for demonstrating commitment to students than online. She is motivated by her belief that her role is to deliver what is needed to support students; for example, “to give [her] extensions, to resend the assignment directions, and to schedule face-to-face meetings, to work side-by-side on
whatever she did not understand about the assignments”, all of which add to the challenge of her practice. Similarly, Sasha’s PC reveals the complexity of teacher educators’ work as it highlights his perceived role in developing preservice teacher understanding of professional behaviour. He believes he has to make students aware of what professionalism is, and although he “did not feel comfortable with the conflict” and “felt guilty”, he persisted with undertaking his role as “the bad guy’, in order to teach this student about professional behaviour”. This commitment to students as part of a professional role is reflected in other PCs through participants’ belief in the importance of relationships.

4.2. The importance of relationships

I often say to my students that teaching is all about communication and relationships, but I have only come to see this as key to my teaching over recent years. (Tori)

This theme is characterised by the importance of building and maintaining meaningful and authentic pedagogical relationships that contribute to student learning, with participants regarding respect as central to these relationships. As Tori suggests, teaching is “all about communication and relationships” and even though she has been a teacher educator for 10 years, she states that this particular focus has become obvious to her only recently. Tori demonstrates her awareness of national teaching standards that require teachers to know their students and how they learn, questioning “how do I apply this to my own teaching?” She seeks to recognise students as “complex individuals” yet is conscious that getting to know students equally well is dependent on circumstances that allow the forging of stronger relationships with some students more than with others. This desire to form relationships, recognising students as individuals, and respecting their needs is also demonstrated by Ruth who shows an awareness of her students’ lives and describes how she “can’t say ‘no’ when my doc [doctoral] students need something that is within my ability to deliver”. In doing so, she privileges the relationship with the students and their learning over her own personal preferences. This relational priority is equally reflected in Harry’s confrontation where, despite reduced time allocation and increased workload, he works to maintain hard won relationships with schools and students. Harry questions the university hierarchy rhetoric that claims meaningful relationship building as important yet fails to employ the same approaches with staff, asking “how do they get the best out of people?” Tori, Ruth and Harry consider how these authentic relationships might be developed as the nature of teacher education changes, and it is the challenges associated with this that we next consider.
4.3. Changing nature of university and teacher education

The pedagogical work I do as a teacher educator is not the way future teacher education is going to be practiced. (Sam)

The changing nature of universities and teacher education and its impact was revealed in six of the PCs. Of particular note are the PCs of Sam, Mark, and Harry as they describe in detail the direct, personal, confronting and sometimes critical communications experienced with those responsible for institutional changes and operational arrangements. All three question the integrity of their own approaches and Harry, in particular, disparages the “economic” rationalism tactics that internal and external agencies apply when enforcing changes to programs, while Sam suggests that “the university doesn’t walk its talk”. According to Mark, teacher educators must address political realities “and assert [one]self as [a] thinker … [and as] humanists”. All three mention experiencing personal hurt; describing that they felt “totally devalued by the hierarchy of the university” (Harry) and had a “reduced passion for … teaching” (Sam). Ruth and Clara in response to institutional directives to move from blended to online teaching describe the ways in which these changes deeply influenced modifications to their preferred pedagogical approaches and their professional identities as teacher educators – a phenomenon also highlighted in the work of Rice, Newberry, Whiting, Cutri & Pinnegar (2015).

5. IMPLICATIONS

Using PCs as a lens for reflective practice has revealed and confirmed the complexity of teacher educators’ work. In particular, it has highlighted the ways in which personal values may conflict with the perceived role of teacher educators, the emphasis on relationships, and institutional expectations. Responses to these PCs varied between participants, with some willing to modify or re-imagine their current practice to address the demands of the institution, while others held firmly to their beliefs refusing to comply. Brookfield’s (1995) concept of deviance credits as “the institutional brownie points that teachers accrue by taking on tasks … that earn them a reputation as organisation loyalists” (p. 41) may explain the variation in responses. He contends that by using deviance credits we “can take an oppositional stand and still have our voice heard” (Brookfield, 1995, p. 41); a response adopted by Sam, Mark and Harry. According to the descriptions of their roles at the university, it appears that their accumulation of ‘deviance credits’ enabled them to maintain their preferred practices in the face of organisational and structural pressure. In contrast, Clara, reflects that “the new organization has thus pulled some of the ground we build our pedagogy on from underneath us and places challenges we have not fully responded to as constructively as we wish”. The mandate for online teaching was directly opposed to her belief that face-to-face
teaching is imperative, yet she feared that her “versatile teaching methods in action would be lost … the connections with students would be looser … and a part of the education … would be poorer”. She and her colleagues were prepared to “grapple with the change that comes from above” and to “look for ways to be the teachers we want to be”. Her response demonstrates that she is prepared to risk and challenge her beliefs and practices to experiment with new approaches to teaching and learning and she claims “it is a work in progress”. As Elliott-Johns (2015) suggests, “Turning the lens on ourselves, as teacher educators, is a constructive starting point in gaining clarity and greater understanding about what we mean by … reflection … and why we think ‘reflection’ is an important element of teacher education” (p. 34). We contend that using PCs as a lens for reflective practice enables us to analyse the values and beliefs that underpin our pedagogical decisions and practices offering an opportunity for critique and reconsideration in light of new and changing contexts.

6. CONCLUSION
This research has revealed and explored the PCs that teacher educators experience in their work leading to new understandings of practice. Using PCs as a reflective tool highlights differences among teacher educators with some willing to trial new approaches that conflict with their existing values and practices, while others maintain a renewed determination to enact their firmly embedded beliefs and professional roles. As Mark suggests, “teaching is always personal, always revealing. We share who we are and in so doing, we underscore our belief system and define our practices … We assert ourselves as thinkers, question ourselves as educators and reinvent ourselves as human beings”. To ignore the opportunity to turn the lens on ourselves and identify and examine PCs, we risk perpetuating the myth that teaching is unsophisticated and simple. Instead, we must grasp opportunities, “question ourselves as educators” (Mark) and articulate our beliefs, pedagogy and practices so as to deepen collective understandings of our profession.

ACKNOWLEDGEMENTS.
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What Counts as Expert Practice? A Discursive Analysis of Experienced Teachers’ Perceptions

Marc Turu

Leeds Beckett University
m.turu@leedsbeckett.ac.uk

ABSTRACT
In 2015 for the first time in England, school-based initial teacher training (SBITT) recruited more students than universities did. It is asserted that SBITT “will raise the quality and status of the teaching profession, better recognising advanced subject knowledge and pedagogy that is rooted in up to date evidence” (DfE, 2016, p.13). As a consequence, schools and teachers are gaining more power to control and decide about the future of initial teacher training (ITT). However, this assumes that teachers possess a homogeneous and adequate expertise to train the teachers of the future. A discourse analysis of perceptions of experienced primary teachers in the north of England was conducted to gain understanding of their conceptions of the expertise required for practice. Data suggests that expert teaching is a controversial term without an essential meaning. Neoliberal transactional discourses are being internalised in tension with the existing romantic and craftsmanship discourses. Interestingly, teaching conceptualised as a systematic inquiry was not found among experienced teachers’ discourses. Lewin’s (1945, p. 129) dictum that ‘there’s nothing so practical as a good theory’ seems ignored by teachers and policy makers: “teaching is a craft and it’s best learnt as an apprentice observing a master craftsman” (Gove, 2010). It could be argued that current discourses lead to a deintellectualisation of teaching that will impoverish teachers’ preparedness and the school system. This research suggests that ITT programmes should (1) incorporate discourses of teaching as a professional endeavour and (2) promote the appraisal of attributes of teachers’ self as professionals.

KEYWORDS: Teachers’ preparedness, teachers’ perceptions, discourse, initial teacher training.

1. INTRODUCTION
In 2015 for the first time in England, school based initial teacher training [SBITT] recruited more students than universities did. It is asserted that SBITT “will raise the quality and status of the teaching profession, better recognising advanced subject knowledge and pedagogy that is rooted in up-to-date evidence (DfE, 2016, p. 13). As a consequence, schools and teachers are gaining more power to control and decide about the future of initial teacher
training (ITT). However, this assumes that teachers possess adequate expertise to train the teachers of the future. For this reason, this research aims to explore how experienced teachers conceptualise preparedness to teach.

2. THEORETICAL FRAMEWORK

Good teaching is a controversial term that has different competing characteristics depending on who defines it. A good teacher is charismatic according to the traditional imaginary, circulating in popular culture and films (Moore, 2004). Dangerous minds, Goodbye Mr Chips, The Dead Poet’s society, Maître d’école, Non é mai troppo tardi, or La lengua de las mariposas are just a few examples. Popular representations of good teachers often perceive them as possessing a strong personality which captivates and engages their pupils. For the English department for education (DfE, 2014, 2016) teaching is a technical occupation. It is argued that good teaching can be described in standards and in terms of observable behaviours/skills, and therefore it is measurable. Other western countries define teaching as a competency-based occupation which involves a mixture of skills, knowledge and values (European Commission, 2012). In specialised literature (See for example Ellis, 2010; Evans, 2011; Korthagen, 2010; Winch, Oancea, & Orchard, 2015) it is widely supported that teaching should be conceptualised as a research-based profession and as an “act of cultural renewal” (Connell, 2009, p. 216) which not only implies know-how but also critical thinking about knowledge and practice. The list could continue with parenthood, pragmatic or moral authority models, to name but a few. However, as Dreyfus and Rabinow (1982, p. 31) argued:

What counts as truth is determined by the conceptual system or, more accurately, the discursive practices of a particular discipline, it makes no sense for him [people] to say that a particular theory in the sciences of man is true or that it is mistaken.

Discourse is anything that gives meaning to things which structures the way people structure their realities. Michel Foucault (1969) argued that there are no universal and objective constituents of human thought that can be discovered through reductive analysis. Therefore, the interest does not lay in the nature of reality, but in how reality is constructed and how discourses function to define reality (Rabinow, 1984). However, some discourses are privileged, legitimating existing power relations and social realities which are so rooted in people’s minds that become common sense (Foucault, 1972).

As stated previously, this research aims to explore teachers’ perceptions of preparedness, in particular:
How is good teaching defined by experienced teachers?
And, what discourse(s) do experienced teachers hold about teachers and teaching?

As Hall (1992, p. 293) argued “language (discourse) has real effects in practice: the description becomes ‘true’”. Teachers have, and will increasingly have, more power and responsibilities in training new teachers, and therefore, it is critical to elicit the discourses that underpin their beliefs about teaching.

3. METHODOLOGY
Participants for this study were primary teachers from the north of England (Table 1). This paper is part of wider research which first phase included a questionnaire distributed to local authority funded schools in Leeds and surrounding area. Those teachers willing to be interviewed after completing the questionnaire were included in this study. Teachers were also recruited via local links to schools and via a snowball effect. It was required that all participants had more than 4 years of experience and had worked with trainee teachers or newly qualified teachers.

<table>
<thead>
<tr>
<th>Participant Pseudonym</th>
<th>Age (years)</th>
<th>Experience (years)</th>
<th>Role</th>
<th>Student teachers or NQTs mentored</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amy (A)</td>
<td>31-40</td>
<td>10-15</td>
<td>Year 5 Teacher</td>
<td>8</td>
</tr>
<tr>
<td>Becca (B)</td>
<td>&gt;50</td>
<td>&gt;16</td>
<td>Year 3 Teacher and SLT</td>
<td>&gt;15</td>
</tr>
<tr>
<td>Diana (D)</td>
<td>&gt;50</td>
<td>&gt;16</td>
<td>Head Teacher</td>
<td>&gt;15</td>
</tr>
<tr>
<td>Eve (E)</td>
<td>&gt;50</td>
<td>&gt;16</td>
<td>Head Teacher</td>
<td>7</td>
</tr>
<tr>
<td>Fiona (F)</td>
<td>41-50</td>
<td>&gt;16</td>
<td>Subject Leader</td>
<td>4</td>
</tr>
<tr>
<td>Hailey (H)</td>
<td>26-30</td>
<td>4-5</td>
<td>Early Years and KS1 Leader</td>
<td>2</td>
</tr>
<tr>
<td>Jean (J)</td>
<td>&gt;50</td>
<td>&gt;16</td>
<td>Head Teacher</td>
<td>10</td>
</tr>
<tr>
<td>Laura (L)</td>
<td>31-40</td>
<td>6-9</td>
<td>KS1 and KS2</td>
<td>9</td>
</tr>
<tr>
<td>Nicole (N)</td>
<td>31-40</td>
<td>10-15</td>
<td>Year 1 Teacher</td>
<td>7</td>
</tr>
<tr>
<td>Olivia (O)</td>
<td>41-50</td>
<td>6-9</td>
<td>Year 2 Teacher</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 2: Participants’ demographics (SLT= Senior leadership team; KS1=5 to 7 years old; KS2= 8 to 11 years old)

In order to explore their perceptions of preparedness and good teaching, participants were interviewed. Semi-structured interviews (Denscombe, 2003) were designed around broad topics: teachers’ experiences with newly qualified teachers, what being prepared meant, lived experiences of good and bad teaching, or beliefs about quality teaching and teachers.
A discourse analysis of the interviews was conducted. The approach taken is more of a broad social science orientation which is interested in practices, objects and subjects rather than with abstract linguistic structures. In particular,
what is of interest is not the nature of world or the alignment of people’s accounts with an observable reality, but how people understand and give meaning to it, how their discursive accounts are constructed (Alvesson, 2002). In order to get access to these constructed realities, interpretative repertoires (Potter & Wetherell, 1988) are used as analytical concept.

Repertoires can be seen as the building blocks speakers use for constructing versions of actions, cognitive processes and other phenomena. Any particular repertoire is constituted out of a restricted range of terms used in a specific stylistic and grammatical fashion. (Potter & Wetherell, 1988, p. 172)

An important aspect of interpretative repertoires is that they are rather coherent ways of speaking about the world. As such, any interpretative repertoire is constituted by a limited range of terms used in a particular way, rhetorically and grammatically. Communities, such as teachers, use repertoires as a basis for shared social understanding, what would be considered common sense, and therefore they can be as a unit of analysis of discourse or “building blocks of conversation” (Wetherell, Taylor, & Yates, 2001, p. 198).

Preliminary coding was conducted in order to analyse a manageable subset of data. All references to expert teaching were selected out from the interviews. At this stage coding was inclusive. The different interpretative repertoires were illuminated by exploring conflicts in talk, tensions and incompatibilities when accounting for the same phenomena (Parker, 1992). In order to elicit patterns of interpretation, three aspects were considered (Talja, 1999, p. 466):

1. The analysis of inconsistencies and internal contradictions in the answers of the participants.
2. The identification of regular patterns in the variability of accounts: repeatedly occurring descriptions, explanations, and arguments, in different participants talk.
3. The identification of basic assumptions and starting points (Foucauldian ‘statements’), which underlie a particular way of talking about a phenomenon.

Statements, according to Foucault (1969), are background assumptions about the nature of things which are socially shared and taken for real. These statements are the base on which people implicitly start to construct their accounts of a particular topic. Therefore, statements permit a particular view of the world, but at the same time limit potential alternative views (Hall, 1992).

4. RESULTS
Two different interpretative repertoires were used by all participants: Neoliberal transactional discourses are being internalised in tension with existing romantic discourses. A stands for Ammy, H, for Hailey and I for interviewer.
Romantic discourse. Most participants claimed that excellent teachers possess an innate way about teaching that cannot be taught. It seems that there is still present the idea of a charismatic (Moore, 2004), naturally talented teacher who with only their tacit knowledge and life experiences is able to transmit all what children need to know for life.

H I don't think good teaching can be taught. I don't, I don't think so.
I Why do you think that?
H Because I think, you really got it or you haven't from my experience, and you can tell within, the ways
I Just when you say it, got it, you mean?
H Just the ability to teach well, the ability to be with children. I do think that some people, I'm not sure that, I'm not sure you can, I don't think you can teach it. And I also think that some people could do it and don't do it, I think some, from my experience, some teacher assistants for example can teach better or have a better, you know, create a better learning experience for children compared to qualified teachers who've been doing it for 20 years.

(Hailey)

Transactional discourse. As expected, the conceptualisation of teaching as an instructional technician is present across all participants. Aligned with the current English schools’ audit culture and managerial perspectives, there is the belief that teachers need to demonstrate measurable skills and competences in order to make pupils learn. Teachers, therefore, are understood as experts in applying pre-established techniques and methods to bring about learning (Winch et al., 2015).

I So, it's seems that engagement, engaging students is very important, right?
A And you've got to know where you're taking them, you know, you've got to have an understanding of the curriculum and know, ok, what's their next step? ok, you can plan a wonderful lesson but where are you going with it? What's the next step in their learning? You know, where is this child? what do they need to do next to make them higher level or push them on otherwise you can do a series of lovely lessons but child's learning isn't going anywhere.

(Amy)

Two main statements were used by all participants. The first is related to the idea of martial control: Teaching predicts learning, therefore, what teachers do will define what pupils learn. It seems that the participants have internalised, and use to build their discourse, the current English neo-liberal conceptualisation of education (Ball, 2013) where all learning can, and must, be controlled. A second statement used by all participants is the idea of teaching as a transparent activity. Teaching seems to be understood as an activity not
mediated by teachers’ subjectivity, but as a direct relationship between content and learning. The only aspect related to teachers’ subjectivity across almost all participants is reflection. However, reflection is seen as a simple instrument to achieve the expected learning outcomes and effectiveness.

I And when you talked about being reflective, what do you mean?
H Reflective, she was reflective, she was able to reflect on her practice every day, every lesson. She was able to reflect on it. She was always doing that.
I Can you be more precise about what you mean about reflect?
H Evaluate the effectiveness of her, her interactions, evaluate the effectiveness of the resources, of adult support, the way she was assessing things. So, she was always, she was always thinking about how to, how it went and how to make it better.

(Hailey)

A I think it’s just that sometimes is that rigidity of thinking of I’ve planned for this so I’m gonna keep going with it and that is where you gotta be flexible. You gotta be sudden ready to switch and change to something else or have something up your sleeve where if they really struggle, ok, let’s try different tactic or if they found it a bit easier that you would have anticipated.

(Amy)

5. IMPLICATIONS
Interpretative repertoires are not thought to categorise people into some sort of labels. Depending on the function of the communication intended people will draw on different interpretative repertoires as flexible resources. Therefore, the aim is to discern the discursive practices used to construct such accounts of reality (Jørgensen & Phillips, 2002), in this case good teaching. Each participant selected different repertoires to build their discourse around expert teaching. However, it seems surprising that teaching conceptualised as a professional endeavour (Winch et al., 2015) was not used to construct those accounts. In this scholar-teacher model teachers not only apply techniques, but research, study and critique their practices as an intellectual discipline. Good teachers should engage actively and critically with research to be able to evaluate its significance to their own circumstances and therefore, determine courses of action based on evidence but also on their own context. Also, the awareness of teachers’ self as mediator of teaching and learning should play an important role in teachers’ practice (Tickle, 1999). Skills, competences and attitudes are important but not enough: Beliefs teachers hold and their identities play an equal important role in teachers’ practice because it is the basis for meaning making and decision making (Korthagen, 2004). As Hamachek (1999, p. 209) argued “consciously, we teach what we know; unconsciously, we teach who we are.”
Lewin’s (1945, p. 129) dictum that ‘there’s nothing so practical as a good theory’ seems ignored by teachers and policy makers: “teaching is a craft and it’s best learnt as an apprentice observing a master craftsman” (Gove, 2010). Current discourses lead to a deintellectualisation of teaching that will impoverish teachers’ preparedness and the school system (Ellis, 2010). These findings have implications for ITT in higher education. Since most student teachers spent their ITT time in placements among other teachers, universities should refocus their teaching emphasis towards developing the professional endeavour discourse among trainee teachers and to promote the appraisal of attributes of teachers’ self as professionals.

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A Narrative Inquiry Into Taiwanese Grade School Teachers’ Practice of Chinese as a Foreign Language in the Philippines

Chih-Pu Dai

Fu Jen Catholic University
chipu17@gmail.com

ABSTRACT
Through the narrative inquiry approach, I adopted Lave and Wenger’s community of practice as lens to examine the experiences of four Taiwanese teachers working in a Filipino-Chinese, K-12 school in Manila, Philippines. Thick description is presented in this year-long study of first-year teachers. Data sources, including participatory observation, interviews, and posts on social networking sites. Triangulating data sources and checking meanings with participants established trustworthiness. Open coding was used to analyze the data. Two themes emerged after probe into the data: The first is identity transformation; the second is communities of practice and professional growth. Through examining stories of four Taiwanese teachers, it shows how the Taiwanese first-year teachers constructed and re-constructed their identities to evolve with students, parents, and administrators. Furthermore, they participated in their local communities of practice to gain resources and pursue professional growth. In addition, the context of Chinese education in the Philippines is clearly presented through narratives. Recommendations for novice teachers and administrators in Filipino-Chinese, K-12 schools are also discussed.

KEYWORDS: narratives inquiry, teacher professional development, Chinese language education in the Philippines, teacher identity.

1. INTRODUCTION
China and Taiwan have dispatched many qualified teachers abroad to compete in the global Chinese language education market. The importance of understanding and supporting newly arriving foreign teachers cannot be overstated, as the potential challenges and/or advantages affect the quality of the teaching process. Given that the purpose of teaching and learning Chinese is influenced by ethnic Chinese identity in Filipino-Chinese schools in the Philippines (Huang, 2014), the circumstances of Chinese language education in the Philippines are unique and largely underexplored; there is little research on teaching narratives in the specific context. Hence, this study aims to explore Chinese language education in a leading Filipino-Chinese school from the perspectives of teachers in order to draw a clearer picture of Chinese language
education and to learn about the experiences of new teachers in the Philippines. Connelly and Clandinin (1990, p. 2) believe that constructing and reconstructing personal and social stories is the essence of education and that narrative studies present “the ways humans experience the world.” Thus, this study utilized narrative inquiry to examine the stories of four grade-school, Chinese language teachers in a Filipino-Chinese, K-12 school in Metro Manila, Philippines. Teacher participation in their communities of practice (Lave and Wenger, 1991) is important for their professional growth. I believe that the meanings of teaching and professional growth are discovered in the process of sharing stories and carefully considering the phenomenon.

2. THEORETICAL FRAMEWORK

Based on sociocultural paradigms, Lave and Wenger (1991) formulated three phases of the learning process. The three phases are: Identity, legitimate peripheral participation, and access to resources. The notion of communities of practice states that learning evolves through participation with peers and involves changing identities and negotiating meanings. All the processes occur during legitimate peripheral participation by novice learners.

Firstly, the reason why novice learners participate in a legitimate peripheral way is because novices have not yet developed a complete and full connection to their respective fields; legitimate peripheral participation allows them to establish identities in the process. As their frequency of participation increases, they will begin to participate fully (Wu, 2011).

Secondly, “participants learning trajectories in which participants’ identities and forms of membership keep negotiating, developing, and evolving” (Wu, 2011, p. 23). Studies on teachers’ professional identities have become a popular topic in the field of education (Gee, 2000; Gao, 2010; Tsui, 2007; Wu, Palmer, & Field, 2011). As mentioned in Cavendish’s (2011, p. 19) study, “Personal story is a vehicle for identity formation.” Beijaard, Meijer and Verloop (2004, p. 122) also stated that identity is “shaped and conceptualized by the interpretation and re-interpretation of experience.” Wu et al. (2011) further pointed out that although teachers hold certain identities and beliefs prior to their service, sociocultural and institutional factors, including school contexts and policies, can limit their practices.

All participants in this study are in their first year of teaching at a Filipino-Chinese school, trying to develop their own teaching styles and identities. I use Lave and Wenger’s theory as lens to interpret their stories. In the process, the first-year teachers’ interactions occurred in a social context that involved students, parents, fellow teachers, and the administrative staff. Teachers
constructed and reconstructed knowledge in community, through persistent communication, interaction, and negotiation of meaning.

3. METHODOLOGY.
The foundation of adopting narrative inquiry was built on the belief that life experience and education are interwoven together and that neither of these elements can be separated from one another (Clandinin & Connelly, 2000).

Context
The Green school (a pseudonym) is a relatively large, Catholic, Filipino-Chinese, K-12 school located in Metro Manila, in the Philippines. Considered a leading Filipino-Chinese school in Manila, competition for admission is high. The admission rate is about 12 percent. In the 2014-2015 school year, the school enrolled 3,120 students. The school implemented a dual advisor mechanism in each class. There is an English advisor and a Chinese advisor. There are approximately 40 students in each class. In order to generate in-depth data and to describe teachers’ stories in sufficient detail, this study focused on elementary teachers. I also taught and participated in the elementary school.

3.1. Participants
Four participants allowed the researcher to explore their stories in depth. The stories are interwoven between these participants. For the sake of privacy, pseudonyms are used for all the participants.

My role and background: I was born and raised in Taiwan. After receiving my bachelor’s and completing my master’s in teaching Chinese as a second language, I decided to go to the Philippines. I had experience teaching Chinese to adults; however, I lacked experience teaching in a formal, K-12 setting. I believe reflecting on our experiences is crucial to providing a possible interpretation of the world.

Giraffe Chung: Chung was born and raised in Taiwan. He reveals that he did not have many friends when he was in middle school, due to his tendency to become easily irritated. He is a strict and finicky perfectionist by nature. His classroom management style at the Green school reflects this. He has a master’s degree in teaching Chinese as a second language from a university in Taiwan, as well as a bachelor’s degree in Optometry.

Panda Tom: He is from southern Taiwan. His desire to teach Chinese as a foreign language brought him to the Philippines. His plan is to go to another country after one year of teaching at the Green school. He has a bachelor’s degree in Chinese literature. He also has experience teaching Chinese as a second language at his university in Changhua, Taiwan.
Cat Jia: She is a recent Chinese literature graduate from a Taiwanese college; therefore, she has no experience teaching school children or teaching Chinese as a second or foreign language. Teaching at the Green school is her first formal job.

3.2. Data Collection and Analysis
I, as one of the teachers, used participatory observation to participate in the study throughout the 2014-2015 school year. Participatory observation allowed me to explore the topic more deeply and view the stories from an insider’s. During the observation, I took field notes to keep track of the stories. Interviews were also conducted when necessary. Other discussions and chats were also recorded for authenticity. The emergence of Social Networking Sites (SNS) has led to new kind of literacy that can represent and negotiate identities in socially recognized ways (Chen, 2013; Reinhardt and Ryu, 2013). Hence, SNS also functioned as a useful tool to contextualize the participants’ narratives in this study. The collection procedure ended when the data is saturated. All the raw data was transcribed into reflective journals and research journals for open-coding analysis.

3.3. Trustworthiness
According to Lincoln and Cuba (1985), in a qualitative study, stories can become more meaningful once the trustworthiness is established. Triangulation in the study was established through a wide range of participants and data sources (Shenton, 2004). I also utilized Bell’s concept of restorying as a strategy (Bell, 2004). Throughout the research process, I constantly re-tell the stories I present in this study to confirm the accuracy of the story. This process was completed over the course of a year-long observation. The longitudinal participation provided me opportunities to perform thick description (Shenton, 2004)

4. RESULTS AND DISCUSSION.
4.1. Identity transformation: Being a grade school teacher
Before the teachers came to the Green school, most of them taught Chinese as a second or foreign language to adults. However, dealing with children is a different kind of experience. The first few months were a struggle for the teachers. The balance between being kind and strict was a constant tug of war for the teachers. Giraffe found through legitimate peripheral participation:

“A girl almost burst out crying, because the English advisor refused to help her get a water bottle that she had left in the classroom after dismissal.”
For experienced teachers, they know they have to manage a class of forty students. They cannot afford to have even one student who does not follow the rules. After observing the interactions of my English partner with the most misbehaved student in our class after dismissal, I realized:

“…even one student can throw the whole class into disarray; hence, experienced teachers tend to be meaner and stricter in order to control the class and establish authority.”

The teachers’ identities shifted from their previous teaching beliefs to opposite ones. Rushton (2004) had a similar finding, which he called “conflict with self,” and this led teachers to uncertainty about their career choice.

“Justin (pseudonym) said I am a good teacher because I didn’t embarrass students. But, from the eyes of the administration and experienced teachers, they must think I am not a good teacher due to the noisy students…gradually, I have become a teacher who embarrasses the students…This is the opposite of what I imagined a teacher should be.”

Through legitimate peripheral participation and negotiation in the community (Lave & Wenger, 1991; Wu, 2011), they are learning how to be a “suitable” grade school teacher at the Green school, not only in the subject matter they teach, but also in advising and managing the class. The teachers adjusted themselves to establish an identity in the Green school. Giraffe asserted:

“Screaming at the students is a must. You can minimize the frequency of it, but it is impossible not to scream.”

Giraffe gained control of his class, and it reflected on the grades of his students. The identity of Giraffe was presented on his Facebook. He pictured himself as a teacher who is good at controlling and managing the students. As he updated his Facebook wall, he wrote:

“Today is the happiest day for me since I arrived Manila…The students behaved very well—if I tell them to go east, they dare not to go west —.”

Figure 1: Giraffe’s Facebook updates demonstrated his identity in exerting control over students.
Giraffe created an identity as the strictest and toughest grade school teacher in the Green school after few months; he garnered rave reviews from the head teacher. However, he sometimes felt conflicted. He narrated:

“Actually, I used to think those teachers who were strict were stifling creativity and critical thinking. But now I am doing the same thing.”

From the perspective of the teachers, gaining control of the class by screaming at them is necessary; however, the students cannot fully understand. There is a comment on my teacher’s performance evaluation by one of the students that says “ALWAYS in a bad mood.” The evaluations of all the teachers also had comments like “teachers are moody!” Hence, striking a balance is what every teacher should learn, both the novice and veteran teachers.

4.2. Identity evolving with Parents

Parents play an important role in the context of the teachers’ practice in community. Wu, et al, (2011: 53) indicated that “Parents were a key factor to either positively or negatively influence teachers’ teaching.” Through discussion and interaction with the parents, the teachers reached an agreement that parents will always offer unprincipled support and protect their child regardless of their child’s behavior. Giraffe reported:

“The mother refused to admit her son forging his parents’ signatures on the test paper. After I told her he had already admitted it, she started to praise her son’s artistic talents on the signatures.”

Aside from manner lessons, parents also put a lot of emphasis on the academic performances of the students, particularly in response to their scores and learning attitudes. When the students did not perform well, the parents would almost certainly blame the teacher. The teachers would start to doubt their own professionalism, and considered leaving their positions. I wrote:

“One of my girl student who scored 96 out of 100 told her mother ‘she doesn’t want to learn Chinese anymore,’ the head teacher called this my attention and observed my class. She called my attention to two mischievous boys. I started to doubt my abilities as a grade school teacher. I felt really down…”

It also happened to Cat:

“Today, a parent of Cat’s student called the director and expressed their intention to change teachers due to constantly misbehaving students in class and students’ poor grades.” Cat said: “After all these incidents, I already want to leave.”
4.3. Communities of Practice and Professional Growth

4.3.1. Chinese language teaching practice in Green School

At the Green school, the teaching training system is very strict. The administrative staff examines all the papers of the students after new teachers checked them. It increased the validity of the test results. As I reflected:

“The director returned the first test papers I checked; there are still a lot of mistakes that I have overlooked. She is really experienced, knowing where the students might make mistakes.”

For every grade level, there is one leader to make decisions and serve as mentor for new teachers. This supportive community helps new teachers minimize their errors as much as possible. On the other side of the spectrum, however, this rigorous system also means a lack of autonomy and additional difficulties for the new teachers. One of the teachers expressed his concerns:

“…Both the teaching materials and teaching methodology made an impact on me. The shared teaching content and methodology of every grade level restrains the teachers’ ways of teaching.”

4.3.2. Washback effect

An authoritarian teacher and test-oriented teaching is central to the culture of traditional Chinese education (Gao, 2010, p. 3). The washback effect largely dominates the teaching culture of the Green school. That is to say, a tendency towards test-oriented teaching is very pronounced and emphasized at the Green school. My observation in a lesson preparation meeting revealed:

“Ms. W: If we don’t include test questions that let students increase their scores for recitation and memorization, students with low aptitude could get failing grades. They are used to this kind of learning approach, since they have been in the Green school since kindergarten.

The administrator replied: because you teachers formed their habits, our students dare not to speak up in Chinese under this teaching practice.”

Although the administrators knew that Chinese education should not be designed for the purpose of memorizing and passing the test, a large number of senior teachers are unable to adjust their teaching style.

4.3.3. Veterans’ comforts

The first-year teachers learned from observing senior teachers. They also felt relieved after hearing similar situations happened to them, regardless of classroom management or students’ test scores:
“I talked to Ms. A [my partner-advisor] after dismissal. She said not to worry. I went to Mr. D [Director of student discipline] frequently last year [her first year in Green school] as well. “

“My students scored really poorly this time, Ms. X comforts me, saying ‘It’s okay, it happens.’”

5. CLOSING STATEMENTS

Through constructing and reconstructing the experiences of the teachers, I sought to portray the landscape of Chinese language education in the Philippines and make their stories meaningful. The beginning of the teachers’ attrition was obvious. However, one teacher in the study successfully constructed his identity as a teacher after few trials, while others struggled throughout the process. As narrated in this study, first-year teachers grew in the supportive community. Although it potentially stifled creative practices, the process of meaning negotiation with veterans is still beneficial for beginning teachers. This narrative inquiry seeks no certainty, rather, with the reflective stance, I have presented a piece of puzzle in the hopes of putting together a larger picture of first-year teachers and how to accommodate them to assimilate into the profession while ensuring the quality of their teaching. The stories told in this inquiry also illuminate their experiences to state that curriculum reform should be initiated. Nevertheless, the story will continue to evolve as new teachers step into the school, but the four teachers’ anecdotes were engraved in the developmental process.

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Studentship: Beyond normative conceptions of civic education in Québec’s ERC program

Ilham Reda¹, and Erin Reid²

¹McGill University
ilham.reda@mail.mcgill.ca
²McGill University
erin.reid@mail.mcgill.ca

ABSTRACT
In the last 150 years in Québec, religious and moral education shifted from being the foundation of the public school system in the shape of the Protestant and Catholic confessional school boards to being taught strictly within the confines of the government-mandated Ethics and Religious Culture (ERC) program in 2008. The ground-breaking ERC program currently serves as the sole curriculum for teaching values, respect, conscience and tolerance to all religions from a secular position (Bouchard, 2009; Boudreau, 2011; Morris, 2011; Zaver and DeMartini, 2016). In this discussion paper, we introduce the term “studentship”, an educational concept that encompasses the ethical values a student should learn and put into practice in an educational setting. We argue for the need of its inclusion in the ERC since merely framing discussions of ethics within the citizenship framework limits the ability of students to fully situate and embody ethical and moral values.

KEYWORDS: civic education, ethics and religious culture, studentship.

1. INTRODUCTION
Every liberal democratic nation has a need for citizens who can uphold principles of justice and equality. Disagreement among citizens who uphold certain principles of justice and equality within a society is unlikely to remain politically stable for long. Canada’s treatment of indigenous peoples throughout its history includes the failure to consider the indigenous inhabitants as “people” or extend them the equal civic right of voting. This failure is an example of a destabilized nation by failing to render justice and equality to all citizens. This, along with the disruption and dislocation of their families and communities through the residential school system (Heaman, 2015), and on-going land-claim disputes exemplified in the Oka crisis of 1990, are a reminder of how systemic inequality has impacted Canada’s political stability.
While liberal citizenship certainly requires the institutional legal protections offered by a legal system, such as the Canadian Charter of Rights and
Freedoms, the values of liberal citizenship imply the need for citizenship education as a major vehicle for inculcating and sustaining the values of citizenship needed to ensure the continuation of a stable liberal-democratic society. More than offering simple legal protections, “...free and equal citizenship is also about the kind of people we become, and the kind of people we encourage or allow our children to become” (Callan, 1997, p.3). It has been noted that a liberal democratic society cannot be certain that the informal institutions, such as the family, for example, will teach the civic virtues necessary for being an active and engaged citizen (Gutmann and Thompson, 2004). Likewise, religious communities and other voluntary associations may be excellent sites for instilling liberal civic virtues, but then again, they may not. Moreover, given the relegation of religious institutions to the private sphere in many contemporary liberal-democratic states (Ibid.), liberal democratic states cannot ensure that religious communities will serve to promote civic virtues among all citizens. As such, the public educational institutions are the most important site of inculcating liberal civic virtues.

To respond to this challenge, we will begin this paper with a detailed discussion of roles of tolerance, recognition, and civic participation and deliberation as key aims in citizenship education for liberal-democratic societies. We will then analyze and contextualize the complex nature of religious and cultural education that constitutes the basis of contemporary educational debate and reform within the public school system in Québec, Canada, by focusing on the ground-breaking Ethics and Religious Culture (ERC) program. Specifically, we will describe the pedagogical techniques in which values are being taught in the ERC, namely through reflection and discussion. Finally, we will propose a new term “studentship”, an educational concept that encompasses the ethical values a student should learn and put into practice in an educational setting. We argue for the need of its inclusion in the ERC since merely framing discussions of ethics within the citizenship framework limits the ability of students to fully situate and embody ethical and moral values.

2. AIMS OF CIVIC EDUCATION
2.1. Tolerance and mutual respect

Tolerance as an educational aim can be understood as a minimum requirement for educating to live with diversity. This classic liberal understanding of tolerance acts primarily as a constraint on those in power and the majority to not persecute or discriminate against others, and is often considered the easiest aim to promote in societies where there is deep diversity. Some critics have argued that ‘mere tolerance’ does not go far enough in its demands and in fact is often used to support structures of inequality and injustice (Brown, 2006; Forst, 2003). Others have responded by suggesting that we can encourage a
more robust form of tolerance that requires citizens to, if not agree with each other, at least engage with one another respectfully (Rosenblith and Bindewald, 2014). Furthermore, while Amy Gutmann agrees with those who criticize tolerance as a weaker version of mutual respect, something that makes fewer demands on an individual, she maintains that there is value in retaining the distinction between mutual respect – of cultural diversity, for example -- and tolerating such diversity (2009). For Gutmann, some views should not be respected even if they must be tolerated in a democratic society (2009, p. 1).

2.2. Recognition

Among those critical of the notion tolerance is Charles Taylor, who considers tolerance insufficient to assure mutual respect in diverse societies, arguing that the demand to be engaged must be more explicit. For Taylor, the key to civic engagement rests on the concept of ‘recognition’ (1992). Recognition goes beyond mere tolerance -- which to some implies passivity --to a necessary act of identification with the other. Recognition of difference is all important because not only is it “a vital human need” but that its absence or misrecognition "...can inflict a grievous wound..." (Taylor, 1992, p. 26). This is important for educators because in failing to recognize difference, for example, the religious backgrounds of our students, due to belief in the liberal strand of thought that calls for equal treatment of all, teachers may unwittingly harm their students who internalize that misrecognition. In the end, whether we call it robust tolerance, mutual respect, or recognition, the fact remains that teaching children to engage respectfully with those with whom we disagree is one of the central tasks for educators in liberal-democratic states.

2.3. Civic participation

To ensure citizens in pluralistic societies participate in civic life, it is critical, as Feinberg has noted, that citizens feel motivated to participate (2012). Rather than being a simple political ideal, he argues that “It is quite essential for meeting the critical problems of our day. From simple recycling programs to the development of alternative forms of energy to combat pollution and global warming, citizen participation is critical...” (p.7). Citizenship education then must clarify not only the responsibilities such civic participation carries, but also the benefits it may bestows. For newcomers to a liberal democracy such as Canada, becoming an active citizen must include an education that teaches not only instrumental civic responsibilities such as voting, but also those moral responsibilities to uphold democratic values of tolerance, mutual respect, and recognition. If all citizens are to feel compelled to participate in civic life, they must feel confident that their voices will be heard and respected, which brings
us to the final aim of education in the liberal-democratic state: democratic deliberation.

2.4. Democratic deliberation

Educating for citizenship means including the aims of building tolerance, recognition and promoting civic participation. However, there remains one key component of citizenship education that must be present for this project to be successful: teaching skills for dialogue and deliberation. In contemporary pluralistic liberal-democratic societies, the tasks of building democratic values cannot be successful unless citizens are able to discuss differences in a productive and respectful fashion. Gutmann considers rational deliberation as a key skill, stating “...deliberation is connected, both by definition and practice, with the development of democracy” (1987, p.52). She goes on to note that as a critical part of the process of ‘social reproduction’ teachers must be able to work autonomously and students must participate in decision-making processes in their schools (p. 90). For educators, this means all students must be equally able to deliberate publicly on all issues with those who may hold morally opposing views. Feinberg notes that this kind of education “...requires a pedagogical strategy and a curriculum where students are provided respect and where they learn to air their different views while respecting the views of others.” (2012, p. 18). However, anyone who has ever attempted to engage in a rational and productive conversation with someone who has opposing views to his or her own will know how exceedingly difficult it can be. Moreover, with the digitization of our social lives, these difficult conversations are more likely to happen online as they are to happen in the classroom, heightening the need for skills of deliberation to be taught effectively.

Thus far we have outlined the aims of tolerance, recognition, civic participation and democratic deliberation with an eye to their role in civic education. In the proceeding sections we will define and analyze Québec’s policy of interculturalism and consider how it intersects with respect to civic and moral aims of Québec’s ERC program. After examining various critiques of the ERC, we will present our response to the challenges we see in the ethics portion of program.

3. INTERCULTURALISM IN QUÉBEC

In the province of Québec in Canada, the policy framework nominated Interculturalism emphasizes on pluralism and integration of new citizens. An update of the Canadian multiculturalism policy and a response to current social and cultural differences in the country (Waddington et al, 2012), interculturality entails a “dynamic, open-ended process of transforming a
common societal culture through dialogue, mutual understanding and intercultural contact” (Maxwell et al, 2012, p. 432). It emphasizes support and maintenance of cultural allegiances (Maxwell et al, 2012), and is the politically accepted term for policies in Québec, Canada (Taylor, 2012). By focusing on its emphasis, interculturalism provides a number of strategies for facilitating participation such as the implementation of government intervention to foster social integration (Maxwell et al, 2012). Interculturalism adheres to fundamental democratic values since at the core of democratic citizenship are the protection of individual rights and the promotion of social welfare. For instance, it forms the basis of a moral contract that calls on all citizens to further the basic societal values of individual rights and freedoms, democratic participation, the promotion of a common public language, openness to plurality and intercultural dialogue (Maxwell et al, 2012). In brief, interculturalism policies draw normatively on the inclusion of shared values of tolerance, respect for difference and individual rights in civic education curricula.

4. THE ETHICS AND RELIGIOUS CULTURE (ERC) PROGRAM
The reflection of such a policy in education has influenced school curricula that aim at the rearing of conscious democratic future citizens (Waddington et al, 2012). The state curriculum Québec Education Program (QEP) serves as evidence of the influence and causal relationship between policy and education. For instance, the three key elements in Interculturalism to reinforce social cohesion such as dialogue, acknowledgment of sociological asymmetry and the moral contract are re-communicated in the QEP’s mandatory Ethics and Religious Culture program (ERC) (Maxwell et al, 2012). The ERC competencies include ethical reflection, knowledge of religious culture, and the capacity of dialogue (Maxwell et al, 2012). Interculturalism draws normatively on reinforcing basic societal values of individual rights and freedom, democratic participation, the promotion of a common public language, openness to plurality and intercultural dialogue (Maxwell et al, 2012). The ERC concords with such aims since it promotes democratic values, ethical reflection that leads to conscientious behavior, knowledge of religions to promote values of tolerance and respect for difference and individual rights which in turn are directly related to the promotion of democratic values and target the mitigation sociological asymmetry.

Although the ethics part of the ERC has received little critical reflection (Bouchard and Morris, 2012), like any other educational initiative and program, it is still prone to evaluation and constructive criticism aiming at its amelioration and subsequent update. For instance, the ethics competency of
the program is assessed by the fulfilment of an academic objective pertaining to students’ capacity to reflect on ethical questions where students are requested “to reflect on the relevance of values and norms” (Bouchard and Morris, 2012). Ethical questions are conceptualized in order to overcome bias and prejudice and enhance students’ understanding of “values, norms, rules, and codes of conduct linked to rights and obligation in a democratic society” (Bouchard and Morris, 2012, p. 181). However, this objective poses as a limitation of the program since we argue that it merely invites students to think critically about values, norms, obligations and rights; such thought-provoking exercises and reflections do not necessarily indicate how they will pose as future guides of students’ actions to be democratic citizens and promote societal good. This component of the program invites fundamental philosophical questions about the foundational aims of moral education on whether the mere aim of teaching ethics necessarily leads to the ability to rationalize ethical behavior.

5. TEACHING ETHICS
Morality at the core and in its absolute value, whether based on religion or rationality, is imperatively based on goodness. It aims at leading humans to engage in socially conscious behavior that maintains an ethical society. Moral education, therefore, has the core objective to lead young students who will ultimately become future active members of a democratic society. The problematic in moral education lies in either an impractical definition of ethics, its pedagogical technique, in the manner concepts about morality are being transmitted to pupils, in teachers’ own understanding of moral concepts, or lack of it, and on the practicality and effectiveness of moral education courses and curricula. For instance, “in the ERC program, ethics is defined as “critically reflecting on the meaning of conduct and on the values and norms that the members of a given society or group adopt in order to guide or regulate their conduct” (Ministère de l'Éducation, du Loisir et du Sport, p. 1; Morris, 2011). Hence, the ERC appears to intertwine the definition of ethics to the procedural nature of ethical decision making before taking action in a given situation. ‘Doing ethics’, therefore, starts by students’ intentional reflection on ethical issues by contextualizing toy examples with ethical dilemmas, comparing diverse viewpoints, analyzing conflicting values, proceeds to the recognition of apparent points of reference or ethical grounds, and culminates in the ability to predict possible options or courses of actions and reflect on how those actions might foster community life (Morris, 2011). In this case, the conception of ethics is misconstrued, equated to the ability to analyze ethical implications of a decision, and merely associated with the cognitive ability to think critically.
On the teaching of ethics, Bruce Maxwell writes: “an alternative view put forward by behavioral ethics is that we need a new model of ethics education that focuses not on directly promoting and modelling ethical reasoning but which emphasizes how bad people are at thinking clearly and impartially about ethical problems” (Maxwell, 2016, p. 3). Hence, ethical education needs to be revisited and reformed by not only taking into consideration the analytical skills needed to resolve an ethical dilemma, but by focusing on the ability to identify faulty reasoning, logical fallacies and the lack of pragmatism of mere ethical questioning and inquiry.

6. CONCLUSION
The educational concept of ‘studentship’ serves as a conceptual device to describe, explain and justify the emergent conception and inquiry of the aims of citizenship education. The ethical values studentship focuses on mirror the fundamental aims of civic education as it draws its theoretical basis on the values of tolerance and mutual respect, recognition, social cohesion, civic participation, and democratic deliberation. As a practical concept, it encompasses the ethical values a student should learn and put into practice in an educational setting. Pedagogically, studentship is taught by reflection and discussion of ethics, but is complemented and assessed by adding an action section in which the student is requested to face an ethical dilemma and transform learned theory into action. Therefore, studentship can constitute an additional part of the program in which students have the opportunity to act upon the reflected values by taking affirmative action in their behavior towards their fellow classmates and teachers. Its inclusion in the ERC is of utmost importance since the current teaching technique of merely framing discussions of ethics within the citizenship framework limits the ability of students to fully situate and embody ethical and moral values.

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Acknowledging complexity: teaching practices at the core

Kathleen Feremans¹, Jan Elen², Ele Holvoet³ and Tim Christiaens⁴

¹Kathleen Feremans, KU Leuven  
kathleen.feremans@kuleuven.be  
²Jan Elen, KU Leuven  
jan.elen@kuleuven.be  
³Ele Holvoet, KU Leuven  
ele.holvoet@kuleuven.be  
⁴Tim Christiaens, KU Leuven  
tim.christiaens@kuleuven.be

ABSTRACT
In 2007 the Flemish Parliament introduced a set of “Basic competencies for teachers”, that stated society’s expectations towards teachers. It quickly became used as a rigid set of objectives for teacher education programs. As each of the competencies have to be acquired and certified, they dominate the evaluation of student teachers. At the same time, the analytical nature of the list became criticized as it might not adequately capture the complexity and intricate nature of teaching (Ball and Forzani, 2009), nor the subjectivity and personality bound qualifications of a teacher.

In order to fully recognize the complexity of teaching in student teachers’ training, this project took the notions of “the inspired teacher” (Steele, 2009) and “core practices” (Grossman, Hammerness, McDonald, 2009) as a starting point. Rather than working on analytical competencies as objectives, this project aims at providing student teachers from the beginning with authentic tasks that mirror ‘core practices’. Hence, student teachers are from the start on confronted with the complexity of teaching and challenged to take ownership and accountability to study, enact, reflect, analyze and master the core practices (McDonald, Kazemi, Kavanagh, 2013). In this paper the relationship between core practices and the basic competencies will first be outlined. Next, evaluation practices will be discussed to highlight how basic competencies are actually acquired while at the same time considering the complexity of teaching.

By doing so we want to contribute to our understanding of how the complexity of teaching can be fully acknowledged in teacher training.

KEYWORDS: teacher education, preservice teaching practice, core practices, practice-based teacher education, formative evaluation, summative evaluation, reflection, e-portfolio.

1. A SHIFT FROM COMPETENCE-BASED TO PRACTICE-BASED EDUCATION
For more than a decade, competence-based education has been the common approach in Flanders’ teacher education. In 1998 the Flemish Parliament
introduced by decree a set of ‘Basic competences for teachers”, and revised this set in 2007. This decree “indicates the start competences and enables the teacher to grow” (Aelterman, Meysman, & Troch, 2008). The basic competences are conceptualized as a detailed description of minimum standards. Although the decree does not detail how to put the competences into practice(s) (Struyven & De Meyst, 2010), they quickly became basis for curriculum design in teacher education programs. Derived as minimum requirements for (preservice) teachers to strive for through professional development, the competencies became goals instead of minimum standards (Struyven & De Meyst, 2010). This resulted in a rigid set of objectives to receive teaching credentials. Despite the efforts, this competency-based approach seems to show flaws. Firstly, Struyven and De Meyst (2010) documented an incomplete implementation, such as the priority teacher education addresses to the competences that pertain to the responsibilities of a teacher to a learner in contrast to the responsibilities of a teacher to the school context. Secondly, researchers are critical to the use of competences as a checklist, likely fostered by the detailed description provided by policymakers (Biesta, 2013). And, although competences as such weren’t questioned, the feasibility of achieving all competences in the current setup of teacher education programs was questioned in a later study (Biesta, 2013). These findings, along with the mediatized messages of unqualified outflow of beginning teachers, caused restlessness in the public space as well as with teacher educators. For preservice teachers to acquire the competences a holistic approach encompassing realistic, authentic experiences in a classroom and school setting was advocated. More practical experiences and longer internships were called for (Onderwijs Vlaanderen, 2012; Biesta, 2013). Within the boundaries of a one year, 60-credit teacher education program, teacher educators are challenged to provide on the one hand more practical experiences from a holistic approach while at the same time enabling preservice teachers to acquire a detailed set of competences. This meant that a revision of our teacher education program was needed. We therefore refocused on the fundamental question: “What qualities must a student exhibit in order to be a good (beginning) teacher?” We identified as such our ‘ideal’ teacher as an inspired teacher (Steele, 2009), able to work with colleagues and enact complex teaching practices in a diverse, continuously changing context. This teacher effectively directs all efforts towards the learning of her pupils. Our next objective was to put these principles into practice and alter our pedagogy of teacher education to meet this ambitious goal. We can do so within the boundaries of a broad curriculum structure agreed upon at the level of the university that aligns with legal requirements. Within that context we have full autonomy to design our program. Tuning theoretical courses, such as
pedagogical content knowledge course, with the growth path during the internship, conducting internship in team teaching setting, better integration in school by increased presence at the school, are just few of the reforms that are scheduled for execution in the following academic year.

In addition, we consider that if we succeed to apprehend the complexity of teaching into elements of practice that capture the diverse basic competences, we give our students the opportunity to develop competences while engaging in actual, complex practice. The notion of ‘core practices’ (Grossman & McDonald, 2008; Grossman, Hammerness, & McDonald, 2009; Janssen, Grossman, & Westbroek, 2015) as in practice-based teacher education is suitable for this objective. Core practices are considered the basic fundamentals of teaching (TeachingWorks, n.d.). They have high impact on the effectiveness of the learning of pupils, and are critical to their cognitive, social and emotional development. Characteristics which all core practices share are: their frequent occurrence in the daily work of teaching; the ability for beginning teachers to actually master them; the preservation of the complexity of teaching; their research-based grounds (Grossman & McDonald, 2008; Grossman et al., 2009; Janssen et al., 2015). In our view, core practices are an externalization of competences. Therefore exercising core practices is not independent from developing competences and vice versa. It challenges our students to analyze, research and make the interpretation to competences based on core teaching practices. To frame this link, we distinguish core practices as ‘teaching quality’ from competences as ‘teacher quality’. The description used by Darling-Hammond (2012) and Kennedy (2006) for teacher and teaching quality indicates similarities in our definition of core practices and competences. Facing changing contexts, it is the teaching quality of teachers in combination with their teacher quality that will elicit effective learning with their pupils (Korthagen, 2004a; Maulana, Helms-Lorenz, & van de Grift, 2015).

2. IMPLEMENTING CORE PRACTICES

Our first step towards an implementation of core practices was selecting teaching practices that are considered ‘core’. Research conducted by University of Michigan was used as inspiration. Considering the literature study and after intensive dialogue within the teacher educator team, 16 practices were identified that met the definition of core practices: “practices that significantly increase the likelihood that teaching will be effective for students’ learning” (Ball & Forzani, 2011, p43). In the identification process the domain of behavioral science and preparation for secondary school teaching were considered as these constitute the context for our students. Our next step was the formatting of a matrix in which we linked core practices with the regulative competences.
In light of the inspired teacher, whom we pursue, Steele (2009) states that attention to the ‘sending behavior’ of teachers is as important as attention to the ‘receiving behavior’. Preservice teachers are more likely to be unaware (Steele, 2009; Steele, 2011) of all the information. Confronted with teaching and its intricate, multidimensional nature, preservice teachers often fail to identify the messages which all actors in the learning environment send and receive. For instance: attention is given to the sharing of content, but not so much on the messages that pupils send, verbally or non-verbally, consciously or unconsciously. Nevertheless, (preservice) teachers need to (re)act instantly, develop routines and adaptive expertise that allows them to use the acquired knowledge in action (Janssen et al., 2015). Preservice teachers need to be educated for this: identifying, being thoughtful to, analyzing, contextualizing events in order to promote the learning of their pupil. Multiple and frequent teaching practice is key to this process. The learning cycle from McDonald, Kazemi and Kavanagh (2013) provides us with a framework for learning to enact core practices. McDonald et al. (2013) argue that while students move from a controlled to a designed to an authentic education setting, their acquaintance with core practices increases. This acquaintance entails a progression from representation of practice (learn about the activity) over approximation of practice (prepare and rehearse the activity; enact the activity) to investigation of practice (analysis and reflection). In designing our practical components of our teacher education curriculum, we follow the described learning cycle. As students move to practicing in an authentic, erratic setting of an actual classroom, routine practices will be challenged (Aelterman et al., 2008) and the importance of thorough analysis and critical reflection will prove to be very important. By confronting our students with the complexity of teaching from the start we challenge them to take ownership and accountability to study, enact and look back at the enactment of the core practices (McDonald et al., 2013). Through this process “teaching quality” is evolving. To foster the development of the “teacher quality” through reflection, we support them with the personal interpretative framework of Kelchtermans (2001). Kelchtermans’ personal interpretative framework (2001) helps teachers to grasp their professional self-understanding and to get an understanding of their subjective educational theory (knowledge and views about education).

3. COMPLEMENTARITY BETWEEN TEACHING QUALITY AND TEACHER QUALITY

While core practices are about the practice of teaching by the teacher and hence about the learning of pupils (making sure questions are raised to scaffold learner’s thinking), competencies are about the underlying teacher’s knowledge, skills and attitude (what type of reasonings may pupils engage in and how can I
challenge and support those). They need one another to develop and flourish. Therefore, our students will be challenged to identify and analyze their knowledge, skills and attitudes from core practices enacted throughout the internship. At regular intervals they will be encouraged to reflect on their core practices and what it means for (the development of) their competencies. For instance: a teacher who qualitatively carries out the core practice of “conducting and guiding conversations about core content” uses a range of competencies to execute the practice. This teacher is knowledgeable on the subject, skilled in supervising the learning and development processes with pupils and in organizing the discussion, and exhibits a posture of critical attitude, organizational ability and flexibility. Based on their look back and reflection, they backlink core practices and basic competences to each other. Thus rebuilding the matrix that was mentioned before.

4. ASSESSMENT OF TEACHING AND TEACHER QUALITY

A change in the approach impacts also the (self)assessment and evaluation process within our teacher education program. Moving to a practice-based curriculum (Grossman et al., 2009) we need to reconsider our tools to assess and evaluate core practices (teaching quality) through which our students develop the competences (teacher quality) set by the decree. First considered is our use of the (e-)portfolio. Although generally considered a valuable tool to develop and assess teacher competences and a means that promotes reflection (Korthagen, 2004a), Struyven, Blieck and De Roeck (2014) found that the use of a portfolio misses the target in the mind of many Flemish preservice teachers. Therefore we consider a refocus on a portfolio as a formative ‘development and learning’ tool instead of a ‘documenting evidence for evaluation’ tool. We propose to focus on the e-portfolio as a growth portfolio and to detach the assessment procedure from this growth portfolio. While doing their internship, our students maintain a growth portfolio in support of their learning process rather than focusing on the portfolio as a deliverable summative product (Korthagen, 2004b; Struyven et al., 2014). The portfolio thus becomes more useful as a means to facilitate professional development (Korthagen, 2004b).

In order to frame the expected professional development of students within the core practices we designed a rubric around the core practices and the four stages in Steele’s (2009) inspired teacher progress: unaware, aware, capable, inspired. Indicators were defined for each core practice which express the expected behaviors. In line with the goal of the growth portfolio, the rubric is designed with a focus on learning. The students observe demonstrated core practices with themselves and their fellow students. This is done in the context of team teaching. They assess the performance, placing each of the core
practices at one of the four mentioned stages. The same rubric is used by mentors and teacher educators when observing and providing formative feedback to students, and for further preparation of lessons. Because the core practices are central to the daily work of the mentor and they preserve the complexity of the teaching profession, we expect that they are easily recognized by the mentor. We assume that thanks to the recognizability of core practices, mentors will be motivated to provide direct feedback to preservice teachers about their context-specific activities, both in class and school context. Direct feedback is particularly appreciated by the students (Struyven et al., 2014).

Upon completion of their internship the preservice teacher works on the assessment file. Based on their growth portfolio they make a resume in which learnings, insights and evidence related to their teaching quality (core practices) and teacher quality (basic competences) are documented (Korthagen, 2004b; Darling-Hammond et al., 2013). To demonstrate their teaching and teacher qualities, the students display and link authentic and relevant materials which they developed as part of the internship (Carnel, Adriaenssen, De Munter et al., 2012). Given that our students worked intensively and focused on core practices during their internship, the assessment file will become the final showcase of their readiness to teach. This showcase is the basis of the summative evaluation consisting of a final interview in which a jury of experts challenges the preservice teacher on the perceived teaching and teacher quality, core practices and competences. Thus student teachers are challenged to think about their own development (Korthagen, 2004b). Putting core practices central, our preservice teachers are motivated to look up and identify their own strengths and areas for development, instead of slavishly responding to a list of basic competences.

5. THE NEARBY FUTURE

We are confident that a practice-based teacher education program, focusing on teaching and teacher quality through the enactment of core practices will provide our student teachers the opportunity to experience the complexity of the teaching profession. We thereby expect the detachment of the learning process and the summative assessment to be supportive for their professional development.

Awaiting the actual implementation of the described pedagogy of teacher education in the following academic year we are aware of the fact that the work does not stop here and that there are challenges ahead. The core practices we defined will probably require further fine-tuning in line with the content specific nature of the domain of behavioral science and the context in which our preservice teachers gain their first teaching experiences (Ball & Forzani,
ACKNOWLEDGING COMPLEXITY: TEACHING PRACTICES AT THE CORE

2011), such as vocational education context. Also the actual realization of the diverse basic competences throughout the enactment of core practices will have to be examined. Additionally the didactical value and use of the rubric as a tool for delivering formative feedback by students and mentors will have to be considered. Furthermore, we will engage in additional research with regards to the quality of our assessment and evaluation methodology and tools in order to ensure irrefutable compliance to the measuring of the regulative competences.

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U.S.-educated and Taiwan-educated Taiwanese Teachers of English: Capital and Agency

Pei-Chia Liao

*Feng Chia University*
*peichial@gmail.com*

**ABSTRACT**
A number of non-native English-speaking teachers (NNESTs) have obtained their degrees abroad in English-speaking countries and have returned to their countries in English-as-a-foreign-language (EFL) contexts, working alongside NNESTs who have been educated domestically. However, many studies on NNESTs often portray them as one homogeneous group, overgeneralizing their diverse experiences in learning the English language as well as their various trajectories in becoming English teachers. Focusing on two Taiwan-educated and two U.S.-educated Taiwanese teachers of English, and drawing on concepts of capital and agency, this qualitative case study brings to the forefront the voices and perspectives of the Taiwanese English teachers. Through interviews, class observations, and document analysis, the study investigates the resources these teachers drew on to assert themselves as legitimate English teachers. The study also depicts the interrelationship of capital and agency. First, it shows how the teachers’ cultural capital and linguistic capital enabled their agency, which allowed them to turn the capital into their pedagogical successes, and second, it reveals how the teachers’ agency helped them acquire or accumulate capital. The study also examines why earning the highly-valued linguistic capital and using it pedagogically enabled the teachers to assert themselves as legitimate English teachers, in considering the contexts where these teachers worked. This study contributes to the NNEST literature by illustrating in-service NNESTs’ perceptions of legitimacy in an EFL context and identifying resources these NNESTs drew upon that helped them assert their legitimacy. Implications for pre-service language teacher education and ongoing professional development for NNESTs are discussed.

**KEYWORDS:** NNESTs, legitimate English teachers, capital, agency

1. **INTRODUCTION**
Many researchers have dedicated to the topic of teachers’ self-concepts (Varghese, 2007); however, studies on how non-native English-speaking teachers (NNESTs) assert themselves as legitimate English educators are underrepresented in the literature of English teacher education. Furthermore, English teachers from outer and expanding circle countries still be at a disadvantage in terms of securing employment and asserting themselves as legitimate English teaching professionals (Motha, 2014).
Many studies regarding issues of NNESTs often overgeneralize their diverse experiences in learning the English language as well as their various trajectories in becoming English teachers. Only recently have researchers acknowledged the diverse educational backgrounds of English teaching professionals in EFL contexts (e.g. Phan 2007; Trent & DeCoursey, 2011). With the constant influx of NNESTs obtaining their degrees in English-speaking countries and returning to their home countries in EFL contexts, little is known about how EFL-educated NNESTs assert their legitimacy [drawing on Golombek and Jordan’s (2005) idea, in this study I conceptualize legitimacy of NNESTs as their credibility as English teachers] as English teachers while encountering their colleagues who have been educated in English-speaking countries and those who are native English speakers.

This study brings to the forefront the perspectives of Taiwan-educated and U.S.-educated Taiwanese English teachers. It investigates the resources these teachers drew on to assert themselves as legitimate English teachers. It also examines the interrelationship of capital and agency. It further examines why earning linguistic capital and using it pedagogically enabled the teachers to assert themselves as legitimate English teachers. The following question guided this study: What are the resources that Taiwan-educated and U.S.-educated Taiwanese English teachers draw on to assert themselves as legitimate English teachers?

2. THEORETICAL FRAMEWORK

2.1. NNESTs as Legitimate English Educators

Golombek and Jordan (2005) examined how two Taiwanese TESOL students asserted their legitimacy in teaching English pronunciation in the U.S. This case study was the first study that explicitly centered on the legitimacy of NNESTs. Golombek and Jordan indicated that there are tensions in how the NNESTs thought of themselves as legitimate teachers of English. For example, one participant stated that even though she received extensive English education in Taiwan and had TESOL trainings in the U.S., she felt conflicted to assert legitimacy as an English teacher because she could not attain English conversations without grammatical errors with native English speakers.

Furthermore, there is a certain degree of unquestioned legitimacy attributed to teachers who speak Standard English (Motha, 2014). The native speaker myth continues to harm the professional lives and sense of legitimacy of many qualified NNESTs (Golombak & Jordan, 2005; Motha, 2014).
2.2. The Legitimacy of U.S.-educated and Taiwan-educated Taiwanese Teachers of English

The social norm of “teacher as expert” (Britzman, 1991) remains prevalent in Taiwanese educational contexts. This norm creates the idea that English teachers are the authority in class, and thus, if teachers reveal uncertainty or make unintentional mistakes in using English, it may shape their sense of legitimacy. In light of Kamhi-Stein’s (2005) point that NNESTs’ self-perceptions may affect their instructional practices and contribute to their success (or failure) as educators, a lack of legitimacy may undermine their instruction and be costly to NNESTs.

Some NNESTs were able to assert their legitimacy because of their study abroad experience in dominant English-speaking countries (Golombek & Jordan, 2005; Ilieva, 2010). Having interaction with native English speakers and being exposed to the Western culture enabled those NNESTs to claim themselves as legitimate English teachers. However, little is known about what resources domestic-educated Taiwanese English teachers assert legitimacy while encountering those colleagues who have been educated in English-speaking countries or who are native English speakers.

2.3. Capital

Capital means material and immaterial resources (Bourdieu 1977, 1986). Of the various forms of capital that Bourdieu introduced, two that are important in this inquiry are cultural capital and linguistic capital. Cultural capital refers to formal knowledge, previous academic experiences, and educational qualifications (Chang & Kanno, 2010). Linguistic capital refers to one’s competence in a language or in using the privileged variety of a language, for example, speaking with the standard accent (Chang & Kanno, 2010).

2.4. Agency

Norton Peirce (1995) asserted that a subject has human agency and a subject can be both positioned by power relations and resistant to that positioning. Inden (1990) conceptualized agency as the realized capacity of people to act upon their world and “that capacity is the power of people to act purposively and reflectively” (p. 23). Furthermore, according to Giddens (1979) and Sewell (1992), structures are sets of resources that empower and constrain social action and structures tend to be reproduced by that social action. In other words, resources shape people’s practices and people’s practices reproduce resources.
3. METHODOLOGY
I conducted a multi-case study because, first, this methodology yields detailed, nuanced, and in-depth data (Yin, 2003). Second, although each participant’s experience and descriptions can be unique, information from a single case can be insightful because it can indicate a larger phenomenon (Wolcott, 2005).

3.1. Participants
All participants (whose names were pseudonyms) learned English in Taiwan and they all started receiving official English education at age twelve in the Taiwanese junior high schools. Hua and Guan pursued their education domestically; Karen and Janice pursued their post-secondary studies in the U.S. An overview chart of my participants focusing on their experience of English learning and teaching is presented below.

<table>
<thead>
<tr>
<th>First Language</th>
<th>Hua</th>
<th>Guan</th>
<th>Karen</th>
<th>Janice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Study Location</td>
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<td>Mandarin</td>
<td>Mandarin</td>
<td>Mandarin</td>
</tr>
<tr>
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<td>Taiwan</td>
<td>U.S.</td>
<td>U.S.</td>
<td></td>
</tr>
<tr>
<td>Fields of Graduate Study</td>
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<td>MA &amp; PhD in English</td>
<td>MA in TESOL</td>
<td>MA in TESOL</td>
</tr>
<tr>
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<td>Wen University</td>
<td>Wen University</td>
<td>Yi University</td>
</tr>
<tr>
<td>Teaching Experience</td>
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<td>15 years EFL</td>
<td>1 year ESL</td>
<td>1 years ESL</td>
</tr>
<tr>
<td></td>
<td>8 years EFL</td>
<td>4 years EFL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Overview of Case Study Participants

3.2. Data Collection
Eleven semi-structured interviews and eight class observations were conducted. All interviews were translated from Mandarin to English and transcribed. I also reviewed documents including class handouts and course syllabi. The review of documents served to supplement what I had learned from the interviews and observations. The combination of the interviews, field notes, and documents helped achieve triangulation of data collected.

3.3. Data Analysis
All interview transcripts underwent open coding, within-case and cross-case analysis (Miles & Huberman, 1994). These steps helped identify themes arising from the conversations and the field notes. I also provided each participant with their individual transcripts and copies of initial data analysis in order to engage in member checks. Additionally, I sought to examine how my
participants constructed their sense of legitimacy as English teachers and thus no clear-cut definitions of legitimacy was provided during interviews. Through stories they told, the participants provided information about their English learning and teaching experience. Their stories motivated me to analyze their narratives. This helped me get a deeper understanding of their English learning and teaching experience in various contexts.

4. RESULTS
The results show that the teachers drew on their cultural capital and linguistic capital to assert their legitimacy. Due to the limited space of this paper, I merely present the linguistic capital of Janice and Guan here. More thorough results and discussions will be presented in future papers.

4.1. Linguistic Capital of U.S.-educated Janice
Janice was particularly intrigued by different English accents and she noted that the U.S. provided her “live experience” to hear people’s various English accents. After receiving her master’s degree, Janice returned to Taiwan. The following is an example of how Janice used her linguistic capital as her pedagogical resources:

Me: I noticed that sometimes you purposefully spoke Taiwanese-accented English when you talked to your students. What motivated you to do this?
Janice: It helps me build a common ground with the students so they don’t find my American-accented English threatening. Compared with my Taiwanese-accented English, students feel their pronunciation is better than that….I also speak Taiwanese-accented English to get closer to my students because they think it is funny.

Realizing that her American-accented English might be intimidating for some students who were afraid of speaking English, Janice switched between her American-accented teacher voice and her Taiwanese-accented student voice. When Janice planned to establish her authority, she used American-accented English; when she wanted to create an interesting learning atmosphere and get closer to her students, she spoke with Taiwanese-accented English. This example demonstrates Janice’s linguistic competence as she knew how and when to produce expressions that are more highly valued in specific contexts concerned.

4.2. Linguistic Capital of Taiwan-educated Guan
Guan felt she did not gain the linguistic capital of the spoken English through the education system in Taiwan because, in her words, “speaking was not the
main focus.” However, Guan noted her speaking skills improved rapidly after she started to teach English:

I made great efforts to speak English well for my students...I imitated pronunciation and intonation from textbooks’ CDs and then demonstrated in class. After I did this for a while, these features [of pronunciation and intonation] became mine.... To practice my speaking, for a long period of time, I talked to myself in English while I rode my motorcycle as I commuted to work.

Guan also established her linguistic capital of English vocabulary by self-learning. There was one incident persuaded her that she could still learn English well without studying abroad. In class one day, the students asked her if she knew the English word for yan hui guang (ash tray in Mandarin). She told the students the answer, and the students told her that they had asked another teacher who had studied abroad but she did not know the answer. Guan then explained to the students that she had bought a vocabulary book one summer and had memorized almost all the words from that book during that summer. Guan told the students that “Many people may not know the English word ash tray if they are non-smokers. It is hard for them to pick up this vocabulary if they do not need this particular thing in their lives.” Guan used this example of learning vocabulary to encourage her students that they could learn English well in Taiwan as long as they make an effort. Furthermore, Guan also indicated that she shared her learning experience with a sense of purpose: “I want to demonstrate that even though I did not study abroad, I can still have lots of English learning opportunities in Taiwan.”

5. DISCUSSION
I first analyze the interrelationship of capital and agency. Then I focus on linguistic capital and explore why owning linguistic capital and using it pedagogically helped the teachers assert legitimacy as English teachers. Lastly, I analyze how Guan felt conflicted as she valued highly her spoken English that legitimized her as English teacher.

5.1. Capital Enables Agency and Agency Reproduces Capital
Janice’s accent-switching strategy is a telling example of how capital enables agency. She utilized her American-accented English to help her establish dominance in class and used her Taiwanese-accented English to create a fun atmosphere in class and lower her students’ anxiety in English speaking. Guan’s examples also demonstrate that agency plays a key role in accumulating capital (Giddens, 1979; Sewell, 1992). In Guan’s early teaching career, realizing that she did not have the linguistic capital from her domestic educational background, she exercised agency to increase her linguistic capital of English.
She practiced her pronunciation diligently and made an effort to acquire English vocabulary persistently.

5.2. The Sociopolitical and Institutional Contexts of Taiwan and English as Linguistic Capital

English is not spoken as a daily language but holds an irreplaceable role in the Taiwanese education since it is one of the tickets to the global opportunities in considering the export-dependent economics of Taiwan (Wu, 2011). However, native-speakerism remains popular to some extent in the English teaching profession in Taiwan: many people believe that Standard English belongs to inner circle countries and native English speakers are more desirable English teachers. Many institutions in Taiwan specifically indicate that they are looking for native speakers of English in job advertisements. In addition, when looking for teaching candidates, many Taiwanese employers highly value the possession of certificates from dominant English-speaking countries. Furthermore, as the study shows, the teachers strongly emphasized the importance of having proficiency in spoken English in their teaching contexts. English-speaking skills could have been underscored because of the requirement of EMI. Therefore, institutional expectations toward post-secondary teachers’ English proficiency are getting higher than ever.

It is worth underscoring Guan’s conflict regarding “speaking beautiful and authentic English,” in her words. Guan noted it was important to speak “beautiful English” because it helped her establish authority over her students. As Guan put it, “Students wouldn’t question my legitimacy if I spoke good English.” However, she also felt conflicted about her effort to speak like a native speaker due to her understanding that there are a variety of Englishes and that Standard English is only one such variety. I argue that Guan’s statement resonates with many NNESTs. While understanding the importance of embracing a variety of usages and accents in English, many teachers still dedicate themselves to striving for better or even near native-like English proficiency. They know their English speaking proficiency helps them claim legitimacy as English teaching professionals. On the one hand, many NNESTs keep trying to perfect their own English in order to earn their legitimacy and to meet the expectations from their institutions, students, students’ parents, etc. On the other hand, they also have to establish different goals regarding English speaking proficiency for their students.

6. CONCLUSIONS AND IMPLICATIONS

Each conclusion is followed by its corresponding implication, which includes suggestions for pre-service English teacher education and ongoing professional development for NNESTs. This study confirms that teachers’ agency plays a
key role in accumulating capital. In considering this point, if NNESTs can be aware of their own strengths and teacher educators can support NNESTs to capitalize on their strengths as teaching resources, this can help NNESTs develop their agency. While NNESTs’ accessibility to resources may be partially shaped by their educational backgrounds, this study shows that Guan exercised agency to gain desired capital. Furthermore, teacher educators can help student teachers realize their agency as professionals at the start of their teacher education. Additionally, most EFL students are educated by their local teachers (Braine, 1999), and therefore, if NNESTs are able to identify their own capital and develop their agency, they can inspire students to find their own strengths in terms of their English learning and be agentive English learners.

This study also reveals that the teachers’ linguistic capital of English played a crucial role in asserting their legitimacy. In light of this, the English competence of student teachers should be strengthened and supported in English teacher education programs. Chen and Goh (2001) pinpointed a clear need for teacher training programs to prepare teachers to attain adequate levels of language competence as they embark on their careers. This language competence should be further developed through in-service professional development programs (Wu, et. al, 2010).

While it is important to pay attention to NNESTs’ English competence, teacher educators should also emphasize that to different extents, NNESTs’ English is naturally characterized by cross-linguistic influence by their mother tongue (Li, 2007). More importantly, it is hoped that by examining and supporting NNESTs’ English proficiency in four skills (reading, listening, speaking and writing), this can help NNESTs reflect on what aspects of linguistic capital are available so they can develop strategies on taking full advantages of those resources.

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Continuous teacher education - a study based on the phases and cycles elaborated by Huberman

Alboni Marisa Dudeque Pianovski Vieira

Pontifícia Universidade Católica do Paraná - PUCPR
alboni@alboni.com

ABSTRACT
In recent years, the discussions and reflections about the continued education of teachers have grown, mainly due to concerns related to teaching quality. Based on this, this study investigates the continuous education processes of teachers of courses in Mathematics who work in public and private higher learning institutions in Curitiba, Brazil, considering the phases and cycles of the teaching career elaborated by Huberman (1992): Entry into the career (first three years); Stabilization phase (from 4 to 6 years); Phase of experimentation and diversification (from 7 to 25 years); Stage of serenity and emotional distancing (between 25 and 35 years of career); and the disinvestment phase (between 35 and 40 years). The objectives of the research were to verify whether or not there is a relation between the professional life cycles proposed by Huberman and the continuous education of teachers in the studied institutions; Examining the types of continued education carried out by the surveyed teachers; And to analyze the teachers' perception about their continuous education throughout their professional career. The research is of a bibliographical documentary and field character. In the theoretical basis, the works of Nóvoa (1992), Goodson (1992), Huberman (1992) and Ferraroti (1988) were used, among others. Nineteen teachers participated in the interviews. Based on the analysis of the obtained results, it was verified that the theory by Huberman has a high degree of assertiveness, with the possibility of identifying the phases described by the author in the reports and experiences of each of the interviewees.

KEYWORDS: continuous teacher education, phases and cycles, Huberman.

1. INTRODUCTION
The objective of this research is to analyze the continuous education of teachers who work in public and private higher education institutions in the city of Curitiba, the state capital of Paraná, Brazil, in light of the phases and cycles of the teaching career elaborated by Huberman (1992). As a specific objective, we sought to verify whether or not there is a relation between the cycles of professional life by Huberman (1992), and the continuing education of teachers, to examine the types of continued education carried out by the
teachers studied throughout their career, and to analyze the perception
teachers' had of their continuous education.
It is relevant to study the continued education of teachers based on their life
story. The personal and professional dimensions of teachers, over the last
decades, constituted a new object of educational research (Nóvoa, 1992). As
Ferrarotti (1988) explains: "If we are, if every individual is the singular of the
social and historical universal that surrounds him, we can know the social from
the irreducible specificity of an individual praxis" (Ferrarotti, 1988, p. 26-27).
Thus, in spite of criticisms of the life stories, it is undeniable that "they have
given rise to extremely stimulating practices and reflections, fertilized by the
crossing of various disciplines and by the use of a wide variety of conceptual
and methodological frameworks" (Nóvoa, 1992, p. 19).

2. THEORETICAL FRAMEWORK
It is known that the process of teacher development is not linear, but full of
complexity. Thus, it cannot be said that the continuous education activities, by
themselves, result in professional improvement. However, the willingness of
the teacher to seek improvement can be considered as an indicator of the
investment in his/her career, allowing an analysis based on the studies carried
out by Huberman (1992), who proposes the following phases and cycles during
the teaching trajectory:

a) Entry into the career - This phase goes from the first year of
teaching until the third year of teaching. The newly arrived teacher
experiences the so-called "reality shock", which means the initial
confrontation with the complexity of the professional situation. It is the
moment in which he perceives the distance that exists between the ideals
and the daily realities of the classroom, the fragmentation of work, the
difficulties that arise from problematic students, the wavering between
relations etc.

b) Stabilization phase - This is the cycle of the professional career
between 4 and 6 years of teaching experience, whose main characteristics
are the stabilization and consolidation of a pedagogical repertoire, in
addition to the construction of a professional identity that assumes the
affirmation of oneself as a teacher. In this phase, the teacher decides to
dedicate himself for an extended period of time to the teaching
profession. Stabilizing, therefore, means obtaining degrees of autonomy
in the professional exercise and finding a proper style of working within
the professional class. There is also an increasing sense of pedagogical
mastery, and the concern for survival in teaching is shifting to the results
of teaching.
c) Phase of experimentation and diversification - This phase corresponds to the career cycle between 7 and 25 years of experience, usually marked by a general attitude of diversification, change and activism. Teachers embark on a small series of personal experiences, diversifying the educational material, evaluation methods and programs, seeking new challenges to avoid falling into a routine.

d) Phase of serenity and emotional detachment - It occurs between 25 and 35 years of experience, resulting in a reduction of vulnerability to the evaluation of others, in the reconciliation between the "ideal self" and the "real self" and acceptance of themselves. Teachers are also more tolerant and spontaneous in classroom situations. There is a decrease in work investment.

e) Disinvestment phase - The fifth and final cycle of the professional career develops between 35 and 40 years of experience. This stage is strongly marked by preparations for retirement and by the progressive abandonment of professional responsibilities. Retirement can be serene or bitter. In the first case, there is a positive approach due to the serenity of the previous stage. In the second, there is the mark of disenchantment, due to past experiences or experienced frustrations (Huberman, 1992, p. 31-61).

A second theoretical aspect that deserves to be addressed within this article concerns continuous education. The choice of the term "continuous training", instead of terms such as recycling, training, professional development, capacitation and updating, among others, is because it brings an underlying sense since each of these terms expresses a conception that is its own.

In recent years, concern about continuing teacher education has grown both internationally and nationally. Scholars such as Zeichner (1993), Perrenoud (1993), Nóvoa (1992) and García (1995) have devoted themselves to the study of the theme, contributing to the theoretical debate.

At the international level, Nóvoa (1992) points out that the 1970s in Portugal were marked by the "sign of initial teacher educating", that of 80, "by the sign of service professionalization", and that of 90 by the "sign of the continuous education of teachers" (Nóvoa, 1992). It can be said that in Brazil, with small variations of time, this tendency was repeated.

According to García (1995, p. 137), continuous education refers to the "professional development of teachers", which values "the contextual, organizational and change-oriented character", at the same time as "it seems to surpass the traditional juxtaposition between initial training and teacher improvement".
The concept of Gatti (2008) is quite enlightening, referring to continuous education:

Structured and formal courses offered after graduation, or after entering the teaching profession, [...] including any type of activity that contributes to professional performance - hours of collective work at school, pedagogic meetings, daily exchanges with peers, participation in school management, congresses, seminars, courses of various natures and formats, offered by the Education Departments or other institutions for staff in education systems, virtual professional relations, diverse long-distance processes (video or teleconferences, internet courses, etc.), professional awareness groups, in short everything that can offer information, reflection, discussion and exchanges that favor the professional improvement, at any angle, in any situation (Gatti, 2008, p.57).

Due to its clarity and amplitude, it was the concept adopted in the accomplishment of this study.

3. METHODOLOGY
The research was of bibliographical, documentary and field character, with a qualitative approach. In the first instance, the bibliographical research was carried out, with a study of authors that made it possible to understand the historical-educational context in which the teachers' life stories were inserted, the professional life cycle of teachers and the concept of continuous education. Next, the empirical research was carried out, with oral sources, and the testimony of nineteen doctoral professors who teach undergraduate courses in Mathematics at public and private higher education institutions located in Curitiba, the capital of the state of Paraná, Brazil. These interviews were exacerbated and the interviewees were identified with the initial M, followed by the increasing numbers starting from the number one. A survey of the education of each of these teachers was also made, through the information available in the Curriculum Lattes. Finally, the data was reviewed, interpreted and confronted to answer the research problem.

4. RESULTS
The data obtained in the interviews, duly organized and cataloged, gave rise to the results mentioned below.

a) Entry into the career - Of the nineteen professors interviewed, one of them was in the initial phase of the career, with a year and a half of teaching. He said he likes to teach, but he still feels a bit afraid in the first weeks, at the beginning of the semester. He added that at times he missed content that would help him in class practice, but admitted that since starting, his performance improved significantly. Other non-
beginner teachers said that in the early years of teaching they felt a clash between the reality found in the classroom and their expectations. M15 commented that, at first, she did not feel prepared to teach, because she was very shy, but gradually discovered herself as a teacher. M14 mentioned the fear and the "butterflies in her stomach" when assuming her first class, that were felt in a very intense manner. M5, referring to the beginning of his teaching practice, reported that "it was very difficult, almost traumatic". Other teachers (M2, M3, M4 and M9) reported that they did not experience the "discovery", which would be the initial enthusiasm and feeling that they belonged to a group of professionals, since they began to work in the area before they even finished their undergraduate degree, as a substitute for colleagues.

b) Stabilization Phase - According to Huberman (1992), career entry may present a barrier of professionals who have more experience than those who are graduating now. Contrary to this possibility, however, M2 mentioned that upon arriving at the school, he was well received by the other teachers and was even offered by another teacher some help with lesson planning. Another interviewee, M6, reiterated that "the reception was very good and the relationship with the other professionals was always very positive." With 4 years of teaching, M9 stated that "now I feel happy with the profession I have chosen [...] I think we can impose ourselves more, it is all completely different."

c) Phase of experimentation and diversification - At this stage, between 7 and 25 years, the individual paths seem to become more divergent. There are teachers who seek to diversify the didactic material, the modes of evaluation, the method to group the students, the sequences of the program. M2 and M3 reported that they participated in various congresses, seeking to update themselves by constantly studying, publishing, taking long-distance courses, exchanging information with other colleagues, checking what is happening in other universities, always seeking to stay up to date with current legislation. Despite the subjectivity of each testimony, one notices that there is a search for new methods and new experiences. M10, with ten years of experience, mentioned having created new tools to help students understand the contents, which brought positive results. In the same way, M11, M12, M13 and M15 talked about the search for new contents and new ways of teaching, emphasizing a change of posture throughout the career and the desire to reach the student and keep him interested.
d) Stage of serenity and emotional detachment - According to Huberman (1992), at this stage, teachers are less sensitive or less vulnerable to the evaluation of others, whether it be the principal, colleagues or students. This characteristic can be confirmed in M4's account: "things that made me sad or angry when I started teaching, I am in a moment that they no longer affect me." There are reports, however, that contradict the characteristic identified by Huberman (1992) that at that stage the ambition decreases, and consequently the level of investment in the career. M5 stated that anyone in the teaching profession must never stop studying and improving. With almost 26 years of teaching experience, M16 stated that he felt fulfilled as a teacher and that, with each subject, with each class he prepared, it was a new thing he learned. He added that he still has several dreams and projects within the university and that he considers himself in the middle of his career, still having a lot to do. M17, with 26 years of teaching, said that "each year only confirms what he really wanted to do, which is to study mathematics and teach mathematics...". He mentioned that nowadays "he is more flexible and that, over time, he felt more mature and secure, that his classes have improved greatly and that each year is a new beginning, a new emotion" (M17). M18, with 32 years of teaching experience, affectionately and proudly referred to his career, he said that he felt calm and confident about the teaching practice, both at undergraduate and postgraduate levels, but that he could not ignore the ever nearing retirement. One of the interviewed teachers, M16, said that something has happened in recent years, that has discouraged students. He said that he has changed a lot as a teacher and because of this lack of motivation of the students, he teaches increasingly weaker classes, no longer failing his students.

e) Disinvestment phase - This stage, according to Huberman (1992), is marked by the internalization, at the end of the professional career. Among the teachers that were interviewed, three of them are in this phase. M6 has 45 years of teaching experience and M7 has 52 years, but still, they do not present any career disinvestment, taking courses offered by the institution and being involved in the orientation of students and other academic activities. M19, however, with 27 years of teaching, demonstrated a significant divestment of the teaching career.

5. IMPLICATIONS/DISCUSSION
The results obtained corroborate Goodson's (1989) statement, that the directions that the teacher chooses for his career can only be analyzed within
his own context, in the same way that the analysis of the training process can only be done by the reflection of those who are graduated. Each teacher, from his or her life history, has demonstrated an understanding of how his/her choices were made, regarding continuous education and what motivated them. From the analysis of the collected data, it can be deduced that continued education, for the teachers participating in the study, is a continuous process and necessary for the good of the teaching profession.

Analyzing the answers given by the interviewees, it was possible to identify that they understand as continuous training the accomplishment of masters and doctorate courses, but also other activities offered by their institutions. Concerning the cycles and phases proposed by Huberman (1992), in general, the data showed that there was an initial shock at the beginning of the career, given the existence of a gap between theory and practice. Over time, however, they admitted a change in their posture regarding students, both from a theoretical and a behavioral point of view.

The experimentation and diversification phase, however, was the one in which the teachers' closest approximation to the model under study was identified. Those who were at that stage were the most motivated, dynamic and engaged in the pedagogical teams or the reforms carried out in the schools.

In the phase of serenity and emotional distancing, as well as in the disinvestment phase, the correlation between the interviewed teachers and the cycles elaborated by Huberman (1992), although existing, showed less effectiveness.

6. CONCLUSIONS
Analyzing the biographical reports of the participants, it can be concluded that the cycles and the phases of professional life elaborated by Huberman (1992) had a significant degree of assertiveness, being possible to identify the phases described by the author in the interviews that were realized with the teachers of the Bachelor's Degree courses in Mathematics in higher education institutions researched in Curitiba.

It is noticed, that the majority of the teachers converge to a broader concept of what is continuous education, prioritizing the teaching practice. There is a latent concern about the quality of teaching and investments in further education courses, lectures, orientation courses, study groups, events and postdoctoral studies.

On the other hand, it is not possible to affirm that there is a disinvestment in the career with the passing of the years of teaching. Nor is it possible to distinguish a period in which there is a higher level of investment in the
profession. What is perceived is that, over the years, new knowledge is amalgamated, due to the experiences of day-to-day teaching.

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Modeling Changes in Teacher Efficacy during In-Service Professional Development in Trinidad and Tobago

Sharon J. Jaggernauth

School of Education, The University of the West Indies, St. Augustine
sharon.jaggernauth@sta.uwi.edu

ABSTRACT
Teacher efficacy has been long associated with effective teaching and student outcomes. This study explored how the teacher efficacy of three secondary school mathematics teachers changed over a 10-month post-graduate in-service professional development programme in Trinidad and Tobago. Three mathematics teachers were selected for in-depth study to identify the experiences they associated with strengthening their teacher efficacy, and to model the change process therein. Constant comparative analysis of data captured through observations of participants’ teaching practice, their developmental portfolios, informal and formal individual interviews, and the researcher’s field notes supported the conclusion that participants’ teacher efficacy was stronger by the end of the programme. Participants attributed the strengthening of their teacher efficacy with their mastery experiences supported by verbal persuasion, vicarious experiences with critical analysis, developing a reflective teacher disposition, belonging to a professional learning community of practitioners, and the embeddedness of these experiences in their particular school context. Participants entered the programme with some degree of teacher efficacy, and the aforementioned experiences provided new information about pedagogy, which initiated changes in their teaching practices. As they adapted new learnings to their particular school contexts and experienced success, they experienced a boost in their teacher efficacy, which incentivised further changes in teaching practices. This study directly addressed the paucity of teacher efficacy research in Trinidad and Tobago, and provides directions for future research to explore the sustainability of teacher efficacy beyond the period of school-based PD, and its implications for strengthening student self-efficacy.

KEYWORDS: teacher efficacy, in-service professional development, Trinidad and Tobago.

1. INTRODUCTION
The Trinidad and Tobago education system reflects its elitist colonial past and an examination-driven education legacy that segregates learners on meritocratic performance in high-stakes public examinations (De Lisle, Smith, & Jules, 2010). Entry qualification for secondary schools teachers is an undergraduate
degree; most novice teachers acquire pedagogical knowledge on the job. However, academic and professional qualifications are both fundamental to teaching (Okyere-Kwakye, 2013). In Trinidad and Tobago numeracy and mathematics skills are below par. Teachers complain about students’ poor attitudes and interest, and students complain about teachers’ ineffectiveness. Student outcomes depend on teachers’ instructional practices, knowledge, and beliefs, and improving teacher effectiveness necessitates teachers reflecting on these areas (Darling-Hammond & McLaughlin, 1995).

Teacher efficacy is a belief teachers hold about their ability to perform specific teaching tasks with competence in a given situation (Dellinger, Bobbett, Olivier, & Ellett, 2008). Teachers experience changes in their careers, contexts, and needs over time. Professional development (PD) that allows them to learn about teaching in the natural setting of the classroom provides mastery experiences in settings comparable to their schools, vicarious experiences through social modelling, and feedback and emotional support (Bandura, 1977) strengthens teacher efficacy and effectiveness.

This study documented the journey of three secondary school mathematics teachers during a 10-month in-service Postgraduate Diploma in Education Programme (PGDEP). The PGDEP is a government-sponsored professional certification for secondary school teachers in Trinidad and Tobago. It focuses on improving teaching and teacher effectiveness using a school-based approach, by strengthening teachers’ pedagogical knowledge, encouraging reflective practice, and engaging them in social learning about teaching. Though not a formal PGDEP goal, strengthening teacher efficacy undergirds developing effective teaching and is a valued programme outcome.

The objectives of this study were to identify the PGDEP experiences participants associated with strengthening their teacher efficacy, and to model how these experiences facilitated changes in their teaching efficacy. Teacher efficacy is under-researched in Trinidad and Tobago. This deficit in teacher efficacy research is worrying because it is associated with student and teacher outcomes (Skaalvik & Skaalvik, 2007). This study highlights the influence of sustained school-based PD on teacher efficacy.

2. THEORETICAL FRAMEWORK

Teachers’ practice reflects the interplay between their knowledge and beliefs (Mansour, 2008); thus, understanding teachers’ beliefs is essential for developing their practice. Teacher efficacy is a belief within Bandura’s (1977) self-efficacy theory that refers to perceived rather than actual capability to perform a task, (Tschannnen-Moran & Woolfolk Hoy, 2001). It filters teachers’ evaluation of their immediate circumstances and resulting plans and actions (Pajares, 1992), and the quality of the educational experiences they create for
students (Nelson, 2007). Teachers develop their teacher efficacy through reciprocal transactional interactions among information perceived from their environment, their cognitive processes, and their behaviours (Bandura, 1978). Teachers’ expectations, perceptions, beliefs and intentions direct their behaviour, which then shapes their thoughts, emotional reactions, and future expectations. These then influence the roles they adopt and social status they acquire in their environment, which influence their social interactions and behaviours in the environment. The responses of others in the environment further shape teachers’ behaviours and cognitive processes.

As teachers’ careers, contexts, and needs change, they pursue PD to learn what they need to know. Effective PD that focuses on content, involves teachers in active learning and collective participation over a significant period of time, and requires critical self-reflection, has transformative effects on teachers’ beliefs and practices (Mezirow, 2009). Teachers can reflect critically on their mastery experiences to align their teaching to their students’ needs (Davis, 2009); observe and discuss teaching with colleagues to provide various insights into their own practices (Tschannen-Moran & McMaster, 2009), and assure themselves that they can be as good as their peers (Tschannen-Moran & Woolfolk Hoy, 2007); and receive clear and consistent feedback on their progress (Labone, 2004). Rogers (2007) suggested that when teachers engage in on-going and sustained learning that is supported by critical reflection, and they change elements of their practice that results in positive student outcomes, only then do their beliefs begin to change.

3. METHODOLOGY.

Design. The qualitative approach is seldom used in teacher efficacy research to collect data through lens of the teachers and to interrogate their experiences (Loughran, Berry, & Mulhall, 2012). The case study design was appropriate for gathering “comprehensive, systematic, and in-depth information” (Patton, 2002, p. 447) about the three participants (cases). Its compatibility with the undergirding critical realism paradigm derives from its purpose of “gain[ing] thoughtful and deep insight into why things are the way they are…“teas[ing] out and disentangle[ing] a complex set of factors and relationships, [in] a small number of instances” (Easton, 2010, p. 119).

Participants. The three participants, Anna, Bobby and Tessa (pseudonyms), were selected from among 21 mathematics teachers in the PGDEP 2013-14 cohort. They were in their mid-thirties and had an undergraduate mathematics degree. They all had taught mathematics at their schools for at least six years. They were selected based on their composite score on the long form Teacher Sense of Efficacy Scale (Tschannen-Moran and Woolfolk Hoy, 2001), which has
been validated in many educational contexts, including Trinidad and Tobago (Jaggernauth & Jameson-Charles, 2015). Mathematics teachers were the focus of this study because they had reported the lowest teacher efficacy scores in previous research involving the PGDEP 2011 – 2013 cohorts (Jameson-Charles & Jaggernauth, 2014). From among the mathematics teachers, Anna, Bobby and Tessa reported the lowest, median and highest scores, respectively, in the pre-PGDEP administration of the scale.

**Methods.** Data were collected from participants’ reflective journal, fieldnotes about focused observations of their teaching, and verbatim transcriptions of audio-recorded semi-structured interviews. All data were converted to text. Constant comparative analysis (Glaser & Strauss, 1967) was used to iteratively code and analyse data to develop and refine concepts, identify their properties and explore their inter-relationships, and develop a coherent and integrated explanatory model (Taylor & Bogdan, 1984). Given that beliefs are evaluative judgments that must be inferred from words and actions (Pajares, 1992), I used In vivo codes to capture participants’ voices about their experiences. Subsequent within-, between- and cross-case analyses provided in-depth understandings of participants’ experiences of the PGDEP, and the process of change in teacher efficacy. I adhered to protocols outlined by Miles and Huberman (1994), and Shamoo and Resnik (2009) regarding ethical practices in conducting research involving human subjects, to improve the transferability, dependability, confirmability, transparency, and credibility of the findings and mitigate limitations as far as possible. However, I was cognizant that my presence could influence my interpretation of their realities and expose my interpretations to scrutiny.

4. RESULTS.

Participants’ post-PGDEP teacher efficacy scores were higher than their pre-PGDEP, and lay within in the same range (see Table 1).

<table>
<thead>
<tr>
<th>Teacher Efficacy Variable</th>
<th>Pre-PGDEP (Total 216)</th>
<th>Post-PGDEP (Total 216)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anna (government co-ed school)</td>
<td>128</td>
<td>190</td>
</tr>
<tr>
<td>Bobby (denominational co-ed school)</td>
<td>150</td>
<td>192</td>
</tr>
<tr>
<td>Tessa (denominational girls’ school)</td>
<td>175</td>
<td>193</td>
</tr>
</tbody>
</table>

Table 1: Participants pre-PGDEP and post-PGDEP composite teacher efficacy scores.

**Efficacy-strengthening experiences.** Participants’ language reflected their assumptions and interpretations of information their experiences provided, and the mechanism driving changes in their teacher efficacy. Open coding generated 66 codes that were reduced to five themes: mastery experiences with social and verbal persuasion; vicarious experiences with critical analysis; school-embedded
experiences; learning in a professional community of practitioners; and developing a reflective disposition.
Mastery experiences with social and verbal persuasion encompassed experimenting with novel instructional strategies, which was enriched by critical self-analysis and feedback from their students, tutor and peers. Vicarious experiences with critical analysis encompassed observing and critically analysing peers’ teaching using novel teaching strategies and students’ responses to them. The critical analysis and discussion of observed teaching during post-teaching conferences facilitated social comparison of the teacher-self and teaching context, and were meaningful because they fit into teachers’ context boundaries. School-embedded learning experiences encompassed a practical and school-focused approach to learning about teaching that reduced the abstract nature of their learning about teaching as they experimented with and adapted instructional strategies to their specific teaching contexts. Learning in a professional community of practitioners encompassed learning about teaching in a community of teachers like themselves, in which discussion, collaboration, and emotional support were paramount. As they spent more time together and learned more about each other, they developed relationships that extended beyond the PGDEP. They learned more together than on their own, and shared their knowledge, understanding, insights, and resources with each other. Developing a reflective teacher disposition encompassed introspection and critical reflection on past and current teaching experiences, personal histories, motivation, metacognitive regulation, and existing teacher efficacy, which influenced how they interpreted their experiences within their own teaching context.

Integrated model of change in teacher efficacy. During the PGDEP, participants received information about teaching and learning in the professional learning environment that encouraged them to consider new strategies and ways of thinking. Their mastery and vicarious teaching experiences embedded in the school contexts, allowed them to contextualize their learning about teaching and learning mathematics. As they experimented with and observed others experiment with novel teaching strategies, they internalized feedback from peers, tutor, and students. They assessed their capability to successfully execute teaching tasks, resulting in evaluative judgments about what they could do in the future; these judgments produced revision or reinforcement of their teacher efficacy for the specific task. As they reflected on the outcomes of these experiences, they formulated future behaviours and either maintained or modified aspect of their teaching and social interactions. Their decisions were based on their tentatively revised teacher efficacy, and they acted in accordance with these decisions. As they adapted new strategies to their school contexts
and achieved success, they experienced a boost in their teacher efficacy, which coupled with new information gleaned during the PGDEP, incentivised further changes in practice. The resulting teacher and student outcomes provided confirming or disconfirming feedback through the five efficacy-strengthening PGDEP experiences. This process continued in a cycle of change as they learned, adapted their learning to the teaching context, assessed the outcomes of their behaviours, and adjusted their teacher efficacy.

5. DISCUSSION

Participants’ mastery experiences were the most important experiences. The feedback about their emerging practice confirmed or disconfirmed their pedagogical decisions, and allowed them to refine and adapt their teaching to their school context. They credited the cyclic nature of teaching and feedback to their enhanced practice. Their experiences with social modeling and social comparison during vicarious experiences assured them that they could be as skillful as their peers (Tschannen-Moran & Woolfolk Hoy, 2007). As they evaluated and discussed observed teaching and acquired different perspectives, their conceptions of teaching and learning, of teachers and learners, and their frames of reference as teachers began to transform (Mezirow, 2009). Being part of a professional community of practitioners facilitated this transformation as they openly discussed their teaching and gained insights from different perspectives (Tschannen-Moran & McMaster, 2009). However, these experiences were only meaningful once they became self-aware and open to change. Their reflective journal allowed them to document and interrogate their thoughts about their experiences and learning, bringing an implicit understanding of their teaching practices to consciousness. They re-evaluated and revised their teaching (Davis, 2009), cognised what undergirded their decisions about teaching in their classrooms, and better aligned their teaching to their students’ needs (Davis, 2009). As the quality of their reflections improved over time, it demonstrated the emerging openness to change associated with deep critical self-reflection and transformative learning (Mezirow, 2009).

The change process reflects the integration of the reciprocal transactional interactions Bandura (1978) proposed, and the sequence of teacher change Rogers (2007) proposed: participants begin the PGDEP with initial teacher efficacy. Their teaching context and individual characteristics mediate and moderate the role of the PGDEP experiences. These PGDEP experiences worked in tandem to facilitate changes in participants’ teaching in their schools. If students responded positively to the change in teaching, then the participant’s efforts were confirmed and boosted their teacher efficacy; if students responded negatively, then the participant sought new information,
from their learning community, to improve teaching. Reflection on practice and outcomes and feedback from their students and others in the environment sustained their efforts in the PGDEP.

6. CONCLUSIONS
During the PGDEP teachers engaged in social and collaborative learning about teaching that was embedded in their particular school contexts; they experimented and observed their peers experiment with novel teaching approaches, and reflect on and discuss their perspectives in a safe community of learning-teachers like themselves. This study highlighted how teachers’ disposition, teaching environment, and membership in a professional learning community of practitioners strengthened participants teacher efficacy during PD. However, future research should investigate the sustainability of teacher efficacy beyond the period of school-based PD like the PGDEP, and its implications for strengthening student self-efficacy.

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The reflexive diaries of mentors in an induction program

Carmen Gallego-Domínguez, Paulino Murillo Estepa, and Carlos Marcelo García

1Facultad de Ciencias de la Educación (Universidad de Sevilla)
cgallego@us.es
2Facultad de Ciencias de la Educación (Universidad de Sevilla)
paulino@us.es
3Facultad de Ciencias de la Educación (Universidad de Sevilla)
marcelo@us.es

ABSTRACT
The induction period is a stage of becoming a teacher. The figure of the mentor has received considerable attention in research on teacher training. The mentor is a teacher with recognized experiences, expertise and specialized training as a trainer, who provides support to novice teachers’ teaching (Orland-Barak, 2014; Korthagen, 2014; Kuh, 2016; Yuan & Lee, 2016). In this paper we describe the process of mentoring that has been developed throughout an induction program for novice teachers in the Dominican Republic. A total of 32 mentors participated in this research, distributed over several areas across the country. The data analyzed in this article were drawn from the reflective diaries that mentors wrote during the program. The total data made up 1,176 pages of text, grouped in 32 reflective diaries of mentors. Aligning with other research on novice teachers and induction programs, the results show the prevalence of problems are related to the methodology, discipline and motivation in all the first years of teaching. These problems are analyzed from the point of view of the mentors themselves who provide supports for novice teachers.

KEYWORDS: reflective journal, beginning teachers, induction, accompaniment.

1. INTRODUCTION.
Induction period is a stage of becoming a teacher. It is not a jump in the gap between initial training and continuous training, but it has a distinctive character and is decisive to achieve coherent and evolving professional development (Boerr Romero, 2011; Cox, Beca & Cerri, 2014). During the induction period, beginning teachers have to accomplish two tasks: they must teach and they must learn to teach (Jensen, Sandoval-Hernández, & González, 2012).
Induction in teaching refers to a phase of learning the craft of teaching where the doubts, the insecurities, anxiety to get into practice, accumulate and coexist without good company. It is an important time in the careers of the teachers who focus on the acquisition of appropriate knowledge and skills in a short period of time and in general in the largest of the solitudes (Vaillant & Marcelo, 2015).

2. THEORETICAL FRAMEWORK.

The concern for the induction as a key stage of teacher professional development has become evident and urgent due to the needs of teachers faced with in some countries. For example, evidence shows that the United States, South Africa, England, Estonia, many countries in sub-Saharan Africa and Chile need to attract and keep teaching people who have access to it (Brindley & Parker, 2010; Eisenschmidt, 2006).

The situation in many countries does not only demonstrate the need to cater to the early years of teaching as a requirement to ensure an effective teacher professional development. There are many investigations and reviews that have been carried out in relation to the subject of our article. One of the most recent literature review work on beginning teachers from Avalos (2016) found, (1) the largest percentage of investigations relates to induction (description of programs, processes, and effects); (2) some research focuses on the processes of teaching and learning (cognitive, affective, social and practical aspects); (3) some research studies attend to professional learning (reflection, cognitive skills, leadership); (4) some research focuses on beliefs, attitudes, tensions, challenges and concerns of the beginning teachers; and (5) some research explores mentoring (relations, qualities and problems of mentors).

Mentoring is a process of an experienced teacher with specific training being in collaboration with one or more beginning teachers (Orland-Barak, 2006). The mentor activities launched with novice teachers include planning, observing, showing, analyzing, meditated on education (Orland-Barak, 2014).

The mentor is an experienced teacher with recognized teaching knowledge and specialized training as a trainer, offering his or her support to novice teachers (Kelly, Reushle, Chakrabarty, & Kinnane, 2014). A mentor is a professional educator that teaches, accompanies, but who also needs to learn a new role (Orland-Barak & Yinon, 2005). Mentors work with beginning teachers in different ways. Some mentors provide personal and emotional support of pedagogical and instrumental support. van Ginkel, Oolbekkink, Meijer and Verloop (2016) found four sets of activities which were mainly carried out by mentors: providing emotional and psychosocial supports; supporting the
construction of personal practical knowledge of the beginning teacher; creating a favorable context for beginning teacher learning and changing the behavior of the beginning teachers.

As we have shown, the research literature on the role of mentor and mentor efforts to support novice teachers within the induction program is very broad and has dealt with problems of varied interests. In this article we would like to answer the following questions:

- How do mentors perceive themselves as mentors?
- What are mentors’ concerns regarding their relationship with beginning teachers?
- Do aspects of classroom teaching focus the relations among beginning teachers and mentors?
- What is the role of the mentor in beginning teacher induction at school?

3. METHODOLOGY.

These research questions situate in the context of an induction program for novice teachers in which authors have been involved. It's a program for the induction of novice teachers in the Dominican Republic which includes a wide variety of activities, face-to-face and online training. The mentors who participated in this study were 32 of which 29 are women and 3 are men. The total number of mentors of the induction program has been 45, and 365 beginning teachers distributed throughout the Dominican Republic.

The data analyzed in this article are diaries that mentors wrote during the program. During the training process, mentors were asked to draft a reflective diary (Slaughter-Defoe & English-Clarke, 2010). The first scenario under analysis is related to the activities carried out by mentors in schools of each beginning teacher: planning meetings, classroom observation, revisions and feedback processes to beginners. The second analyzed scenario was the so-called “learning circles”. Learning circles are matches of each mentor with assigned novice teachers. Learning circles are an opportunity to jointly reflect on teaching and their potential for improvement.

The collected data consisted of 1,176 pages of text, grouped into 32 daily papers. The data analysis process began with the individual reading of diaries written by mentors in order to develop a first set of categories. With the aim of providing structure to it, we turned to the work developed some years ago (Marcelo, et al., 1991) and based on Jordell’s (1985) three dimensions to analyze the problems of novice teachers: personal, didactic and organizational dimensions. Taking into account of these three general dimensions, we developed categories and subcategories based on our reading of the diaries written by mentors.
4. RESULTS.
To understand the orientations adopted by mentors in their relationship with the beginning teachers, we analyzed the content of mentors’ diaries. How do mentors perceive themselves as mentors? What are concerns of the mentors in their relationship with beginning teachers? Do aspects of classroom teaching focus on the relations between beginning teachers and mentors? What is the role of the mentor in the beginning teacher induction at school?

- How do they perceive themselves as mentors?

The analysis of the diaries shows us that the highlighted understanding of mentoring is that mentoring is a process of guidance, support, development, collaboration, help, etc. Mentoring is a process that mobilizes the experience and wisdom of practice to make it available to teachers. “A mentor is a person who accompanies and advises. A counselor, critical friend who is supportive and willing to collaborate as a team for the majority of the teaching assignments”.

Mentors have the role and functions of support and accompaniment, as a growth tutors and professional. They do not understand their function such as supervision, control or authority. Mentors feel the responsibility as more experienced teachers to novice teachers (Orland-Barak & Yinon, 2005): available to teach, collaborate, preview, and support to people who have little experience or less knowledge of something in which the mentor is an expert or has more experience and more knowledge.

- What are the concerns of the mentors in their relationship with the beginning teachers?

Research literature shows that a part of the mentors work has to do with emotional and personal support for beginning teachers (Avalos, 2016). Novice teachers undergo true crisis in which it was not uncommon to question their own ability to teach: “She does not sleep, must take pills to sleep after giving lessons”. Currently, the mentors feel useful as support for teachers’ beginners, showing their experience and helping them to overcome the difficulties encountered at personal or classroom level.

In this role, mentors are thus themselves supporting not only professional but also personally and emotionally to the teachers who are just starting the teaching profession (Yuan & Lee, 2016). All are involved and are committed to the proper development of their beginners, while they sometimes show frustration or separation such as “the teacher was a little discouraged, with little energy”, “the teacher who still is not doing a great job, don’t know what to do,” “feels disoriented”, “It wants to guide and to support him”. In this sense, and as Bickmore and Bickmore (2010), points out the fact that mentors and
learners establish good relations also in the personal field, helps teachers not to abandon his profession, who collaborate closely and collaboratively in the construction of joint practices. Representative narratives of this idea are: “the beginner who looks tired, exhausted and unmotivated that says this is not easy, I ask you to be quiet”, “I preferred having studied another career.”

- Do aspects of classroom teaching focus on the relations among beginning teachers and mentors?

Along with emotional support, mentors justify their activity in the accompaniment and support for the improvement of the teaching of beginning teachers’ classes. Several are the topics discussed in the newspapers such as problems, difficulties and concerns, training needs, interactive teaching and planning of it.

One of the issues that inform mentors in relation to beginning teachers have to do with difficulties in managing the classroom and the use of appropriate teaching materials: “the beginner needs management and mastery of classroom support and development of the moments of class”. These problems are related to what the literature called clash with reality (Veenman, 1984). For some beginning teachers, the teaching experience implies a true personal challenge. But not all are problems. A part of the reflections that mentors expressed in their diaries are related to progresses or learning that beginning teachers have done throughout the program. These lessons have to do with his own appreciation, and make reference to the views of other professionals in the school: “the Teacher Coordinator says that the work performed by the teacher is very good and is an model to follow”, “the Coordinator considered it one of the best teachers of his Center” or “the director of the Centre said that he feels as if he is making progress with the teachers”.

Among the concern of mentors are two aspects related to the environment of classroom management: the discipline and motivation. With respect to discipline and control of students, mentors’ reflections are focused on situations of disorder: “stop not very harmonious environment, the atmosphere was not good, the children came out of class, not attend to my instructions”, “the teacher can not follow the process since the students were very restless and this generated indiscipline” or control as: “There is a course very ordered, with an atmosphere of respect, all students are very well arranged sitting in rows” “there is a very good student group domain”. In relation to the motivation of students, students remain vigilant when using methodologies and interactive resources. Recreational materials, videos, crafts, workshops, etc.: “many children raise their hands to go to the Blackboard and there is an active participation”.

- What is the role of the mentor in the beginning teacher induction at school?
The work of the teacher, as described above, focuses primarily on personal and educational support to novice teachers. References to the school are scarce and much lower than other dimensions. In some phrases mentors make explicit reference to other teachers in the school, highlighting the educational collaboration, and how some beginners receive help, support and commitment to teaching fellow of the center. On most of the centers, there is a good group cohesiveness, with positive feelings of belonging to the group: “it is accompanied by another teacher who is not on the agenda”, “If I say help to another I do although it is not my job”, “if I say help to another I do although it is not my job”, “relationships interpersonal is of positive emotions”.

How directors and other teachers welcome beginner teacher influence significantly in its development and inclusion. In this regard, an aspect highlighted by the majority of mentors is the favorable reception that have had in all schools. The characteristics of the center atmosphere are: welcoming, collaborative, participatory, dynamic and empathetic. As Kuh (2016) says, if the organization is able to promote reflective processes of teaching practices, the positive effects on both students learning and their own learning process will be strengthened. Professional development in communities of reflective practice provides meaningful experiences in the learning of teachers when they share with others their experiences and interests.

Mentors highlighted how in general the educational community has been giving novice teachers a good reception on the first day when they arrived at the Center: “was well received in the Centre of great satisfaction”. Mentors included how the directors or supervisors of these centers has been interested in the induction program, creating collaborative networks, promoting good environments for cooperation and providing aid and support within its capabilities: “Coordinator is always ready to provide facilities to make possible the accompaniment”.

5. DISCUSSION AND CONCLUSIONS.
We can conclude that the professional identity that has developed within participant mentors, leads them to perceive themselves in a profile of guidance, accompaniment and support, more than supervision or control. The role of mentors is a personal and emotional support provided to beginners. It is in collision with the reality experienced by beginners whose mentors perform functions of emotional companions, interested in the issues that created anguish and despair to beginners, thus avoiding having to leave the profession early.

But the identity is also reflected in the functions of educational accompaniment of beginning teachers. The educational problems encountered by the beginning
teachers align with the existing research literature, focusing mainly on the discipline, motivation, planning and use of technologies. The mentors that accompany teaching beginner play an important role in the socialization of novice teachers. They provide emotional and professional support in the first stage of his teaching work.

The orientation that is perceived through their narratives in the diaries is a focus of what we might call “pedagogy of care” (Nicola, Novakowskia, Ghaleba, & Beairstob, 2010). Mentors take his role from the commitment to the growth and support to beginning teachers. This commitment is reflected in the fact that many of the learning circles who have organized and attended by novice teachers assigned, all have been held in weekends, Saturdays or Sundays, many of them made at homes of the mentors. This orientation called matriarchal by Orland-Barak (2014) has permeated the written speech of mentors.

Mentoring has been a natural and informal process that has always existed in the teaching profession. In recent decades, with the formalization of induction processes, mentoring has been regulated and organized to respond to both system and beginning teacher requirements. At this point, the mentor appears as a figure on the scale between the needs of novice teachers’ staff and requirements of didactic orientation, emotional, psychological, support development of teaching skills, and administrative management (Yuan & Lee, 2016). As Orland-Barak and Yinon (2005) said, the mentor should learn a second language, support, guidance and accompaniment.

REFERENCES


Building teacher professional identity strategies: discourse analysis of Teacher Training Course student’s textual narratives (São Paulo/Brazil)

Luciana Maria Viviani¹, Verónica Marcela Guridi², and Elen Faht³

¹Universidade de São Paulo – Brazil
lviviani@usp.br

²Universidade de São Paulo – Brazil
veguridi@usp.br

³Universidade de São Paulo – Brazil
elenfaht@usp.br

ABSTRACT
This work aims to carry out a reflection about teacher professional identity (re)building processes taking place during a Teacher Training Course. We collected student discursive narratives in three moments: at the beginning of the course, at the beginning of their internship in a school, and at the close of the internship. We collected and analyzed 100 written narratives by means of an open questionnaire, containing the question: “Over the years, have you changed what you think about being a teacher? Why?”. The study carried out statement descriptions and discourse control following a Foucault-based discourse analysis. Our goal was to analyze if and how the students’ trajectories changed their professional identities. Most answers admit changes in the students’ perception of the significance of being a teacher, from a negative perception to a positive one, throughout the course. Moreover, our analysis pointed at the production of identity formation strategies by the students: they seek a balance between internal and external transactions, including the university, in order to support and to legitimize their choice of becoming teachers. We also identified some differences among students at the beginning of the course and those starting or having concluded their internships: the latter showed greater complexity in teacher professional representations. This may indicate that teacher professional identity discourses are (re)built from social interactions experienced during the course, especially during classes associated with education and internship guidance.

KEYWORDS: teacher training course, teacher professional identities, Foucault-based discourse analysis, narratives.

1. INTRODUCTION
This work aims to carry out a reflection about teacher professional identity (re)building processes taking place during a Teacher Training Course. A
teacher’s identity is formed in the course of one’s whole life and suffers the influence of personal experiences and interactions, in the family and school environments, and in all the social instances where our future teachers socialize.

Despite recognizing that the teacher’s process of identity formation takes place in complex, countless social and individual instances, we took as a premise that the initial formation period is very important. In this sense, we sought to answer the following questions: How does the initial training of teachers contribute to the formation of teacher professional identity? Are there differences between the students who have just started the course and those who are years into it, in terms of the discursive constructions of identity issues?

2. THEORETICAL FRAMEWORK

When the student comes to the Teacher Training Course, he or she brings along a teacher professional identity built prior to joining the program, as mentioned above. The very choice of teaching as a profession bears the influence of earlier life experiences and of models built by the teachers-in-training during the period they were pupils, as well as family influences, as discussed in a research previously carried out (Author, 2015).

Dubar (2005) states that identity formation takes place in the interaction of transactions both “internal” and “external” to the individual, transactions between the person and the institutions interacted with. He identifies two distinct identity processes. The first regards the attribution of identities by the institutions that directly interact with the individuals; and the second is associated to the forms of identity incorporation by such individuals. This identity can only be known by means of individual testimonies on the different life paths. Not always coincident, the two forms converge through what the author denominates identity strategies, whose knowledge could clarify the process of building social identities.

Marcelo (2009), in his turn, states that the teacher’s identity is developed in what he calls the inter-subjective terrain, in an interpretation process that each teacher carries out about oneself as a person, according to the particular context the person is part of. The author singles out the main challenge as that of transforming the teaching profession into a profession of knowledge, one which secures the fundamental right of learning for all pupils, seeking equality in the process of access to knowledge by one and all.

In this study, social identities are considered not as fixed, permanent or essential, but, instead, as identities that are continuously formed and transformed, even contradictorily, in interaction with different historical moments and in diverse systems of social signification and cultural representation (Hall, 2011). The author uses the same idea of articulation to characterize identity as a meeting point between discourses and practices that
lead subjects to take up certain social positions and, on the other hand, the process of building subjectivities that in turn produce subjects. The identities would be, therefore, “points of temporary attachment to the subject positions which discursive practices construct for us. They are the result of a successful articulation or 'chaining' of the subject into the flow of the discourse” (Hall, 1996, p. 6).

3. METHODOLOGY
We collected students’ discursive narratives in three moments: at the beginning of the course, at the beginning of their internship in a school, and at the close of the internship. We collected and analyzed 100 written narratives by means of an open questionnaire, containing the question: “Over the years, have you changed what you think about being a teacher? Why?” We analyzed the narratives of each one of the three student groups considered, so as to verify possible differences in discourse among the groups.

The study carried out statement descriptions and discourse control, following a Foucault-based discourse analysis. We sought to describe the enunciations and ordination forms of the discourses present in the material obtained by the survey. Such discursive description diverges from linguistic analysis, because it does not refer to the linguistic sequences that could possibly be formulated, but, instead, it refers to the restricted set of those sequences actually formulated. It also diverges from the history of thought, since it holds as a goal to reach not the meanings of that which has been said or written, but the comprehension that is manifested in a certain way and not in any other. As a discourse is described “we must show why it could not be other than it was, in what respect it is exclusive of any other, how it assumes, in the midst of others and in relation to them, a place that no other could occupy” (Foucault, 2012, p. 28).

4. RESULTS
The answers to the question posed to the students show a clear tendency: almost 90% of these future teachers admit a transformation in the perception of the meaning of being a teacher, changing from a negative view to positive one, from a view where the professional plays a very restricted role to someone who plays a more complex one, linked not only to cognitive aspects, but also to affective and social ones, showing that the students’ teacher identities find increasing complexity.

We describe below some of the most frequent enunciations in the survey, indicating transformations in the views on teaching activity. One of the enunciations analyzed here (3.1) was identified only in the group of students
starting the course, another (3.3) only among those who were concluding their internships, in the 8th semester. Finally, enunciation 3.2 has occurred in all student groups.

4.1. From the authoritarian teacher to the counselor who develops in the student the will to learn

Here the discourse is permeated by the issue of teacher/student personal relations, very frequent in the beginners’ narratives, as shown by the fragments below:

“I used to believe that the teacher was an instrument to keep the ‘order’ and hierarchy in face of the students. Today, I believe that the role of the teacher is to develop the will to learn in the student” (Marcio / All names are fictional).

“Initially, the teacher was seen by the students as an incontestable authority and who seemed to beam out an unbreakable rigidity in class. In the course of years in school, I realized how much this stereotype has increasingly disappeared, and the teacher started to become more of a counselor, more affectionate with the students and more helpful to them” (Rosa).

Another of the chief change tendencies present in the narratives of the future teachers was expressed by the enunciation below.

4.2. From the teacher who knows-it-all to the mediator teacher

This enunciation was present both in the beginners’ narratives and of the students who were already into internships, almost equally (about 10% more of interns of the first or second modules). Some narrative fragments by the future teachers illustrate this tendency:

“The teacher teaches certain knowledge that, depending on the pupil, does not fit his or her future. It is not only the teacher who ‘shapes’ the other professions, but also the relations that the individual keeps with society. The teacher is, therefore, a mediator (guide)” (Jorge - beginner)

“The meaning of being a teacher has changed in two aspects. The first is in the social scope, where the transformation takes place by minimizing the teaching career, leading the professional to become a mere content reproducer; and the second aspect takes place in a personal perspective, it is fantastic to know and to be able to be a teacher who masters content and knows how to participate in the mediation of knowledge”. (Valter – first module intern)

Before I entered university, I thought that teaching was a gift, something a person was born with, and also a mission (…) thanks to the knowledge I got in University, I understood that, in order to be a teacher, one has to study a lot, and, therefore, [teachers] must earn good wages in order to study more and be able to deliver better classes, with better resources and teaching and learning methods”. (Oscar – third module intern)
We can detect that the students evolved from a more naive view, characterized by the perception that the teacher is someone all-powerful, to a more realistic view, restricted to the roles of mediation, of citizenship education, roles that are widely discussed in educational literature, an issue that will be approached in topic below.

4.3. From the teacher as a theoretician to someone who also develops practices.

A very frequent enunciation in the students’ narratives regard the importance of lived experience in training activities, especially among those who are concluding the course. These place great importance in teaching practices during the teacher’s training process, given that, in the last module the internships, conducting lessons activities are proposed. A few excerpts:

“...and this has increasingly changed me, the meaning, with the internship” (Débora).

“Initially, I believed that I would not be able to work as a teacher, but today I do see myself working as a teacher. Thanks to classes of education for the teaching of Sciences, I secured the conditions to be a teacher (...). The internship showed me that I can contribute with teaching and this became my main motivation” (Manoel).

The practical lived experiences are deemed essential for the construction of teacher professional identities for these students, and they are revealing with regards to the teaching professional meaning and to the intentions of working in this area. To be in the school/field internship gives the students a different notion of the practices and roles they will have to play as future teachers, a notion they consider as something closer to reality.

5. IMPLICATIONS/DISCUSSION

We have identified some differences between the students’ discourses right at the beginning of the course and of those who have been attending it for some years. A greater complexity of representations of the teaching profession was shown by the latter.

Among the great majority of those just beginning the course and who have stated having changed their view of the teaching career, the idea of widening the roles of the teacher was very present, in general terms, with no details as to what this widening would amount to. In the narratives of the future teachers who were doing the compulsory internships, the widening of the teacher’s role
was placed into another scope, this time regarding society as a whole, as well as teaching theories and procedures and even regarding functional issues. This change can be related to a transition between traditional teaching, centered on the teacher, and constructivist or humanist teaching. These are two paradigms in Education Psychology that have influenced teaching discourses and practices for the last 20 years (Hernández Rojas, 1999). If, traditionally, the role attributed to the teacher was, among others, to impose a rigid discipline shaping “docile bodies” (Foucault, 1991), today, what more often circulates in educational discourse is a disciplining role linked to coercion and emotional factors, besides cognitive ones. For instance, “to develop the will to learn in the student”.

The cognitivist and constructivist theories, which have dominated the educational debate at least in the past two decades, uphold, among others, the principles of “building knowledge based on what students already know” and “grounded on the interest of the pupils”, two statements that can be related to this third one, that of developing the will to learn in the students. However, it is not possible to state that such views have been constructed by the contact with disciplines of the Teacher Training Course, also because some students had just joined the course. What is possible to state is that they are in tune with legitimated discourses that circulate in the educational field, such as Freire’s, who states that

> the teacher-in-training needs to, from the beginning of his or her educational experience, take up the role of the subject in knowledge production, and be definitely convinced that teaching is not to transfer knowledge, but to create possibilities for its production or its construction (Freire, 2008, p. 23) (Translation by this author).

There are strong indications that the mediation role which the students refer to is the one informed by the Social-Cultural Paradigm, headed by Vigotski (Hernández Rojas, 1999), especially if we consider that this paradigm has become hegemonic in many institutions both in educational discourse and practice. It is important to underline that many of those joining the course have also mentioned the teacher’s mediation role. Perhaps these students have had contact with such statement during their passage through basic education in school or by means of readings that attribute such role to the teacher.

Another form of the teacher’s work, highlighted in the second statement (3.2), regarding the education of citizens, is a lot more general and established, amounting almost to a tautology, since the education for citizenship is one of the roles expected of school and of teachers. This discursive formulation circulates both in the educational scope and in society at large.
Regarding statement 3.3, we can say that it is associated to the discourse stating the balance between theoretical and practical teachings, written into the teaching courses’ curricula. For Perrenoud, “that which for a long time was relegated to the unsaid of individual experience or to the rendering implicit of common meaning, became object of reflection, has increasingly acquired a status, especially during training” (Perrenoud, 2001, p. 158). Often considered insufficient to secure professional efficiency, the teaching of scholarly knowledge is, in some training proposals, modulated by the work with practical knowledge, taking as a base, for instance, works by Schön on reflection processes in and about action.

As this statement features only in the questionnaires filled in by the interns who are concluding the course, it constitutes an important distinction regarding the texts from students who are in the first module of their internship, and even more different from the textual production of those who have just joined the course, for these can still consider their professional work as something far ahead of the present. For the interns who are concluding the course, on the contrary, teaching practice is something very present and causes disquiet, because of the carrying out of conducting lessons, and also because of the proximity with exams and consequent certification for imminent entry in the labor market.

6. CONCLUSIONS

The importance of the students’ lived experience in the process of (re)constructing teaching identities during initial training is evident. First because of the changes in the meaning of what is to be a teacher, a response to participation in the course’s disciplines. Second, we notice this change in the students’ very discourse, changes in the language used as they employ terms specific to the educational field, and also in the issues mobilized in discourse, with a greater variety and depth in the themes chosen, comparatively to the narratives by those starting the course.

Despite the fact that the interns give teaching practices great importance, they do not fail to indicate, as the course progresses, the relevance of the theoretical basis provided by the different disciplines in teaching training. This relative balance can be related to the organizational structure of the internship disciplines in focus: parallel to the visits to schools, the students attend disciplines where their lived experiences are presented, discussed and shared with colleagues who are allotted to other schools. This allows for a collective kind of reflection, based on the theoretical studies developed in these disciplines and in other ones previously attended.
As discussed by Hall (1996), the identities that the teachers-in-training built in the course of the teaching training course can be considered a meeting point of the discourses and practices developed in the disciplines, the internships and in other experiences inside and outside university. A provisional fixation of the teachers-in-training onto the flux of discourse produced in this institution.

We can conclude that the issue of teacher professional identities in the course of the teachers’ initial training is very relevant, as it allows for a shared reflection by the students about the meanings and roles given to this professional, as well as the different social instances where their identities are grounded. They will thus be able to choose their professional trajectories, in a more consistent and grounded way, both in practical and theoretical terms, with the clarity that these paths will be subject to reformulations.

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BUILDING TEACHER PROFESSIONAL IDENTITY STRATEGIES: DISCOURSE ANALYSIS OF TEACHER TRAINING COURSE STUDENT’S TEXTUAL NARRATIVES (SÃO PAULO/BRAZIL)


Student Teachers’ Journey in Professionalism

Birsen Tütüniş¹, and Duygu Yalman²

¹Istanbul Kultur University
tenunisster@gmail.com
²Istanbul Kultur University
d.yalman@iku.edu.tr

ABSTRACT
Student teachers come to university with expectations of learning how to become good teachers and the program designed for their education also aims to prepare them for their future profession. While student teachers are navigating their way towards professionalism, they need to shift identities from student to novice teacher with a well designed program. Unfortunately, the English language teaching programs in Turkey fail in this aspect although the mission stated is in line with the ideal. This paper is about a small scale qualitative study conducted at a Turkish university with the third-year student teachers’ studying the "Teaching English to Young Learners" course. The efficiency of the program will be discussed together with the data analysis. The discussion will hopefully lead to larger scale research on student teacher preparation for professionalism.

KEYWORDS: ELT (English Language Teaching, EFL (English as a Foreign Language), TEFL (Teaching English as a Foreign Language), TEYLs (Teaching English to Young Learners), ELTEPs (English language teacher education programs), CoP (Communities of Practice), Student Teachers (STs), Second Language Teacher Education (SELTE)

1.INTRODUCTION
Student English language teachers in Turkish context, receive professional knowledge during their university education. However, they do not encounter the actual classroom atmosphere until the fourth year of their education. It is a long journey in their preparation for professionalism. This paper focuses on teaching young learners course within ELTEP. During the past two decades in Turkey, as in many European Union countries, we have witnessed, great changes in initial teacher education resulting in two program reform movements that took place in 1998 and 2006. Within this framework, different aspects of the English language teacher education program were studied.
However, the time to be exposed to actual classroom settings did not find its correct phase within the program. The first year was considered to be too early. The third year was the time for professional knowledge when prospective teachers study all the courses related to their field, and that did not leave time for them to observe classrooms. Student teachers did peer teaching in all courses and that developed their presentation skills but not their classroom management. The new program also heavily emphasized the teaching practicum by introducing 3 courses, namely, ‘School Experience I’, ‘School Experience II’ and ‘Teaching Practice’, in two terms in the fourth year, that required student teachers to be placed in primary and secondary schools to observe and experience ‘real’ teaching. We believe this is too late for a teacher candidate. Therefore we tried to organize some observations at local preschools and primary schools where third-year student teachers could see how young learners learn English. It was a good step towards the profession but not to professionalism.

2. THEORETICAL FRAMEWORK

Shanahan, Meehan & Moggie, (1994, p. 3) define professionalism as “the process of using education and certification to enhance the quality of performance of those within an occupational field” Foreign language teacher education is assumed to supply the basis for professionalism. However, teaching is recognized as both individually practiced and socially shaped phenomenon with lots of constraints imposed by the society. Teacher candidates are prepared for their professional communities with the help of their university tutors and by experienced teachers as mentors. They also have beliefs imposed by their culture. As Wenger, et. al. (2002, p. 34) state, prospective teachers need to be ready for the Communities of Practice (CoP) before graduation so that they can join “a group of people who interact, learn together, build relationships, and in the process develop a sense of belonging and mutual commitment”. In Turkish context, the preparation phase is too late.

Teaching young learners is quite different from teaching adults. Teachers need to be skillful in many things like arts and crafts, singing, dancing, acting, story telling and performing. Learning the skill of teaching involves student teachers constructing their own knowledge about the subject matter and a range of classroom activities. Burns & Richards (2009) categorize the knowledge provided in SELTE into two as the knowledge “about” and the knowledge “how”. It is assumed that teaching expertise can be acquired through content-based courses followed by a practicum-school experience. For the TEYLs course, the theoretical background knowledge forms the basis of the knowledge “about” and the peer teaching with puppets, songs and games
forms the knowledge of “how”. However, teachers’ subject knowledge and their professional behavior in general depend on not only the education they receive but also on the feelings, beliefs, attitudes, values and the culture of the society.

3. METHODOLOGY

We conducted a small scale qualitative study with the third year students of the ELT Department. Our aim was to investigate the student teachers’ beliefs and attitudes towards teaching young learners, and their application of the received theoretical knowledge to their peer teaching practices. Our study searched an answer to the following question: Does ‘Teaching English to Young Learners’ Course help prospective teachers to become efficient in their teaching practices? In line with the purpose of the study, data collection included the perspectives and the teaching practices of ELT student teachers, pre and post test results in the form of a questionnaire, interviews, peer teaching observation reports, oral and written feedback, self evaluation after watching their teaching practice videos (reflection) and focus group discussions (Marshall & Rossman, 1999).

The third-year students (N=28) taking TEYLs course were chosen as the participants sampling all the third year ELT students throughout Turkey. The number dropped to 18 due to some students’ accreditation problems.

The duration for TEYLs course I and II is two terms (30 weeks). The pre-test was given in the first term, at the beginning of the 2016-17 academic year. The post-test was administered at the end of the academic year (May 2017). The course is four hours per week (2 hrs theory+ 2 hrs practice) for two terms (15+15 weeks). The course program is for very young learners (pre-school age 4-6) for 15 weeks and for young learners (primary school age 7-10 yrs.) for 15 weeks.

The student teachers took the pre-test, did presentations, prepared lesson plans and did peer teaching. They reflected upon their peer teaching. They prepared teaching materials, made puppets and used them in their teaching. They went to a private pre-school, observed English classes and wrote observation reports. They did similar activities in the second term but this time they observed primary school students. They wrote stories and made story books, and used their story books for their peer teaching. The researchers arranged pre-school and primary school observations. Student teachers were interviewed on their feelings about teaching young learners. Focus group discussions at the end of the year shed light upon the problems diagnosed by the researchers in the ELTEP in Turkey.
4. DATA ANALYSIS

We divided the analysis procedure into the five parts as suggested by Marshall and Rossman (1999): 1) organizing data; 2) identifying themes, patterns, and categories; 3) testing the emergent hypothesis against the data; 4) searching for alternative explanations of the data; and 5) writing the report. We then selected excerpts from the transcripts and placed them into broad categories in search of thematic connections within and among the transcripts (Seidman, 1998). Throughout the analysis process, we used student teachers’ own voices and words to describe their experiences. The tables below show the results:

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-22</td>
<td>2</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>22-30</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 1: Subjects Pre-test

As seen in Table 1, the study group consists of 28 student teachers aged between 18-30.

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-22</td>
<td>1</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>22-30</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 2: Subjects Post-test

After the post-test, 10 student teachers had to drop out of the course due to some students’ failure of other subjects. At the end of the study we examined 18 student teachers’ data.

The pre and post test questions:

Q1. Do you have experience in teaching English to young learners?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>2</td>
<td>88.8%</td>
<td>16</td>
<td>11.2%</td>
<td>18</td>
</tr>
<tr>
<td>Post-test</td>
<td>7</td>
<td>61%</td>
<td>11</td>
<td>39%</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 3: Pre-Test and Post-Test results

According to the Table 2.1, only 2 student teachers declared in the pre-test that they had experience in TEYLs. This means that 88.8% of the participants didn’t have young learner experience. According to the post-test results, 61.1% of the student teachers had teaching experience of young learners, and
five student teachers declared that they started voluntary teaching in some pre-
schools.

Q2. Please state the issues you find easy and difficult in teaching English to young learners.

<table>
<thead>
<tr>
<th>Easy</th>
<th>difficult</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td></td>
<td>The answers given are chosen according to the full agreement of all subjects who took both tests.</td>
</tr>
<tr>
<td>-Teaching songs</td>
<td>-teaching with games</td>
<td></td>
</tr>
<tr>
<td>-Teaching vocabulary</td>
<td>-being like a child</td>
<td></td>
</tr>
<tr>
<td>-Doing quiet activities</td>
<td>-motivating them</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-class management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-being patient</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-being creative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-preparing materials</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td></td>
<td>The answers given are chosen according to the full agreement of all subjects who took both tests.</td>
</tr>
<tr>
<td>-teaching songs</td>
<td>-being like a child</td>
<td></td>
</tr>
<tr>
<td>-teaching vocabulary</td>
<td>-class management</td>
<td></td>
</tr>
<tr>
<td>-doing all activities</td>
<td>-being patient</td>
<td></td>
</tr>
<tr>
<td>-playing games</td>
<td>-being creative</td>
<td></td>
</tr>
<tr>
<td>-motivating them</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-preparing materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of subjects</td>
<td>18</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 4: Pre-Test and Post-Test results

The answers given to this question varied but the researchers chose the ones fully agreed by all participants who took both tests (N=18). Although most of the subjects did not have experience in TEYLs, they all agreed on the stated points in Table 4 and Table 5.

Q3. Please state your weaknesses in teaching young learners

<table>
<thead>
<tr>
<th>Weaknesses</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>The answers given are chosen according to the full agreement of all subjects who took both tests.</td>
</tr>
<tr>
<td>-being like a child</td>
<td></td>
</tr>
<tr>
<td>-patience</td>
<td></td>
</tr>
<tr>
<td>-class management</td>
<td></td>
</tr>
<tr>
<td>-interaction</td>
<td></td>
</tr>
<tr>
<td>-creativity</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td>The answers given are chosen according to the full agreement of all subjects who took both tests.</td>
</tr>
<tr>
<td>-being like a child</td>
<td></td>
</tr>
<tr>
<td>-patience</td>
<td></td>
</tr>
<tr>
<td>-class management</td>
<td></td>
</tr>
<tr>
<td>-interaction</td>
<td></td>
</tr>
<tr>
<td>-creativity</td>
<td></td>
</tr>
<tr>
<td>Number of subjects</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 5: Pre-Test and Post-Test results
Q.4. How efficient do you find yourself in teaching young learners

<table>
<thead>
<tr>
<th></th>
<th>Not efficient</th>
<th>Not sufficiently efficient</th>
<th>Efficient</th>
<th>Difference Between Pre and Post Test</th>
<th>Highly efficient</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>0 %0</td>
<td>10 55.6%</td>
<td>8 44.4%</td>
<td>13 – 8 = 5 %70.2-44.4= %25.8</td>
<td>0 %0</td>
<td>18 %100</td>
</tr>
<tr>
<td>Post-test</td>
<td>0 %0</td>
<td>4 22.2%</td>
<td>13 70.2%</td>
<td></td>
<td>1 %7.6</td>
<td>18 %100</td>
</tr>
</tbody>
</table>

Table 6: Pre-Test and Post-Test results

According to Table 6 only one student teacher considered herself as highly efficient as she was experienced in TEYLs. The post-test results for this question indicates the efficiency of the TEYLs Course program. However, the course content, school observations and the peer teaching experiences could change only %25.8 of student teachers’ beliefs on being efficient in TEYLs.

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Positive comments</th>
<th>Negative comments</th>
<th>No comments</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female (16)</td>
<td>-they learn easily -well designed book and materials - active class -activities geared to individual differences</td>
<td>-too much patience -too many materials -too much energy -what to do with - passive students -not easy to teach</td>
<td>----------</td>
<td>16</td>
</tr>
<tr>
<td>Male (2)</td>
<td>----------</td>
<td>----------</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 7: Comments

The observation reports displayed the willingness of only female student teachers to work in pre-schools. Young children’s language learning was put as a positive comment. Male student teachers’ no comments indicate their indifferent intentions of working with young children.

In the interviews student teachers expressed their gratitude to the researchers for providing them the opportunity to observe real young learners’ classes at pre-school and primary school settings. Their knowledge on ‘what’ made their observation more meaningful. They could all see the learning differences between very young and young learners. They could spot the individual
differences and teachers’ patience towards them. Only one student teacher stated that she could never become a young learners’ teacher since she did not have the skills and she was too tall for them. Student teachers find it very difficult to address the children in English. Their instructions are long and complicated. They use colloquial English like ‘Hi guys’ ‘guys now I want you to...’ etc. They make mistakes in English and when they watch their videos they get shocked. Here is an example:

“Ok Let’s start our lesson with BINGO. I want ( means I want you) to think of places in our country and I want them (errr) I want (ehhh) you to choose three....”

They usually start their lesson with a song but the aim is not clear:

“She started with a song so that the students feel more eager and find motivation for learning the topic. She used visual materials to draw the students’ attention. She read the story and students acted it out.2. she aimed to teach S. Past Tense 3. Comment: She could have used the song later on when the students got bored.”

The focus group discussion questions were prepared by the researchers with the aim of raising awareness on the issues related to teaching young learners. We identified two themes for discussion:

a- Linguistic competence of the student teachers on their journey to professionalism (Student Teacher Talk versus Class Teacher Talk) and 

b- Student teachers’ beliefs and attitudes in the process of gaining professional competence (know what and know how).

Students discussed the pros and cons of teaching young learners and came up with ideas both for themselves and for future student teachers. They all agreed that student teachers find it difficult to apply their theoretical knowledge to their teaching practices (i.e. addressing children, giving instructions. They also agreed unanimously that the practicum period in their university education needs to be at earlier years.

The post-test results indicate the effectiveness of the TEYLs course on the attainment of necessary knowledge “know what”, and the positive support given to the student teachers on “know how”, regarding how to teach English to young learners. Focus group discussions on positive and negative comments about TEYLs, enabled student teachers to see different views and how to benefit from them. An alternative explanation of the data is seen to be the effectiveness of the TEYLs course in the journey towards professionalism.

5. IMPLICATIONS AND DISCUSSION

Freeman (1989), offers a differentiation between “know what” and “know how”:
“It is inaccurate and misleading to imply, as we do in most pre-service language teacher education... that knowledge of these areas alone will necessarily enable or equip people to teach. We should not be so taken in by that relationship between the knowledge/skill base” (Freeman, 1989, p.29)

The knowledge that student teachers develop does not necessarily lead to better classroom practices. Learning to teach a foreign language is a social process. Student teachers are influenced by their own English teachers and by their mentors during their practicum period, not by lectures on the theoretical issues related to L1 and L2 acquisition. English teachers in Turkish state schools usually take a prescriptive approach to language teaching. They give detailed information about the structure of the language. Although recent coursebooks are designed in line with communicative language teaching, teachers still do a lot of mechanical drilling. The class sizes are big and they find it difficult to spare time for pair work or group discussions. They have to teach the book, cover the syllabus and prepare the students for the exams. Therefore, students know a lot about the foreign language but are shy in speaking. English teachers in Turkey are not given the chance to go and live in the country where English is native tongue. Their English needs improvement. ELTEPs need to be revised and opportunities for student teachers to visit English-speaking countries should be considered. The present programs prepare for the profession but not for professionalism. Novice teachers take experienced teachers as models. The practices of the ELT community need to be changed, especially in state schools.

The results of this study indicates that student teachers’ English needs to be improved. They make a lot of mistakes when they are addressing students. They need to be trained on how to give instructions to young learners. They keep repeating the words, trying to find the correct word for young learners as seen in the example above. The instructions are not clear, so the learners do not understand. Student teachers switch to mother tongue when they can not address their students in English. They find it easy to start their lesson with a song and they say “I have a song for you.”. The class teacher in real life situations on the other hand uses the song when necessary and they say “listen to the song”. The instruction is simple and clear.

Student teachers’ beliefs and attitudes in the process of gaining professional competence on “know what” and “know how” change in time. Much of our preliminary education is concerned with a body of established facts and truths in order to master a domain of knowledge. Student teachers know that the materials required to teach YLs include board, board marker, course books etc. The TEYLs course provided them with the knowledge to use materials beyond their predictions. They enjoyed making masks, puppets and making story books. They enjoyed surfing in the net to find appropriate songs and games.
They did a lot of arts and crafts activities. However, at the beginning, they did not change their beliefs that talking about the structure of the language is a must. After observations in private schools, student teachers stopped talking about the structure of the language, but they did not know what to use to replace it. They all started their peer teaching with songs. Reflections on their peer teaching practice helped them to realize how to put the received knowledge into practice and they used songs with a clear purpose.

After doing the course and peer teaching practices student teachers changed their beliefs about some of the classroom activities. They found some activities (i.e. teaching with games, preparing materials) easier than they thought. It could be explained by the activities student teachers did during the TEYLS course (i.e. making puppets, preparing story books, making masks, etc.).

Pre and post-test results show that they have changed their beliefs. They find it difficult to motivate young learners in the pre-test however they change their beliefs in the post-test and believe that they can motivate young children easily. According to the post-test results, student teachers’ beliefs about classroom management of young learners remained unchanged and they still believe that it is difficult. This result could be related to their self evaluation on patience and creativity. Due to children’s short span of concentration, student teachers have to be creative and patient to attract children’s attention. Children have high levels of energy. Student teachers stated in the interviews that they find it amazing how teachers manage to keep up with this energy. Children love to play and they use their imaginations in their plays. Montessori (1912) believes in play and takes it as ‘the work of the child’. Student teachers use games in their peer teaching but they find it difficult to behave like a child. Their peer teaching reflections and peer evaluations show their knowledge, but since they do not have the compulsory practicum for this course, peer teaching only does not depict “know how” in real classroom settings.

6. CONCLUSION

The researchers aimed to find an answer to the research question “Does the Teaching English to Young Learners Course help prospective teachers to become efficient in their teaching practices?”. University education is assumed to prepare the students for the community of practice where they form a different identity. This huge shift from university student to working life needs adequate preparation. Student teachers’ practicum period has utmost importance in this process. However in the Turkish context, student teachers do their practicum in the fourth year which is too late to see the real classroom settings and to form some teaching habits. We believe, peer teaching in the courses related to their field is not sufficient for orienting the knowledge towards an understanding of classroom reality.
In our investigation into the efficiency of the TEYLs Course, this study indicates that the TEYLs Course is efficient in raising awareness of how to teach young learners. However, peer teaching and real classroom teaching needs to be differentiated (Freeman, 1989) and the student teachers need to be given opportunities for teaching practice (practicum) at the earlier stages of their university education since our mission is to prepare them both for the profession and for professionalism.

REFERENCES


Teaching as a discursive practice: new perspectives for teacher education

Helena Montenegro

Pontificia Universidad Católica de Chile
hlmonten@uc.cl

ABSTRACT
Teacher educators play an important role as models for the next generation of teachers. Through their teaching practices, they may have a strong impact on the student teachers’ views of teaching. Russell (1997) states that how teacher educators teach is the message that student teachers learn within teacher education programs. However, how do teacher educators enact this message with student teachers? Based on the work of Bakhtin, the current study proposes teaching as a discursive practice materialized by a pedagogical discourse that represents the message about how teaching is enacted. Data were collected through in-depth interviews with a sample of teacher educators from four pre-service teacher education programs. The interviews were analyzed using the Dialogic Discourse Analysis method.

Results showed that different pedagogical discourses coexist among teacher educators and teaching as a discursive practice involves the interrelationship of two elements: a discursive content taught and a discursive manner enacted. These two elements range from a greater or lesser degree of dialogism and alterity (otherness) in concordance with the complexity of the teaching practice. Finally, we discuss suggestions for improving teaching from a dialogical perspective.

KEYWORDS: teacher educators, teaching, discursive practice, dialogism

1. INTRODUCTION
Teacher educators play an important role as models for the next generation of teachers. Through their teaching practices, they have a strong impact on the student teachers’ views of teaching, improve the quality of teacher education, and play a critical role in educational reform (Boyd, 2014; Cochran-Smith, 2003; Loughran, 2006; Lunenberg, Korthagen, & Swennen, 2007). As a consequence, the quality of teacher education is affected in part by who teacher educators are and how and what they teach (Berry, 2007; Davey, 2013; Loughran, Keast, & Cooper, 2016).
Russell (1997) argues that teacher educators need to pay careful attention to the teaching practices employed in teaching the subject matter because how teacher educators teach is the message that student teachers learn within teacher education programs. In other words, teacher educators share and
practice what they preach as teachers. However, how do teacher educators enact this message with student teachers?

In the current study, we propose to understand teaching as a discursive practice materialized by a pedagogical discourse that represents the message about how teaching is enacted. In this regard, an interesting proposal to understand teaching from that perspective is the one presented by Bakhtin (1982), who develops a theory about the social and communicative nature of human life.

Central to the argument of this theoretical framework is the distinction between authoritative and internally persuasive discourse and the process of assimilation of others’ words with a greater or lesser degree of otherness (Bakhtin, 1986; Matusov, 2007). Using this theoretical framework, we aim toward a more comprehensive understanding of teaching by exploring the relationship between teaching practices and their pedagogical discourse considering the dialogic nature of language.

2. THEORETICAL FRAMEWORK

2.1. Key role of teacher educators in teacher education

As a matter of fact, teacher educators play a fundamental role in the initial training of future teachers. For example, several studies have shown that the knowledge required to teach about teaching is far more complex than merely transferring theories or models of good teaching (Berry, 2007; Loughran, 2006; Montenegro, 2016). Also, the professional knowledge and experiences that teacher educators have cannot be easily transferred to student teachers (Bullock, 2009; Murray & Male, 2005).

Besides, Loughran (2006) argues that teacher educators not only should be able to demonstrate the knowledge and skills of teaching but also should be able to teach it. In other words, they should position themselves as experts who share the pedagogical reasoning and dilemmas of practice to help student teachers think and develop their own teaching practices. Equally important, they are always teaching to teach so they have excellent opportunities to provide a role model for their student teachers regarding the pedagogical tools they use and the professional values they apply (Boyd, 2014; Loughran, 2006; Lunenberg, et al., 2007).

Therefore, a challenge for teacher educators is not only to pay attention to what is being taught but also on how it is taught and if it is congruent with the pedagogical theories and teaching practices that they introduce (Lunenberg, et al., 2007). For those reasons, Loughran (2006) argues that becoming a teacher educator is a problematic enterprise.
2.2. Teaching as a discursive practice

This study defines the teacher educator as a social and discursive entity. Consequently, the knowledge imparted by teacher educators may be conceptualized as a discursive practice of a social nature (Wertsch, 1999). Bakhtin (1982), develops a theory about the social and communicative nature of human life. This author argues that all human experience is linked to the use of the word that is materialized through utterance. Furthermore, the word and the utterance are not neutral, considering that they are made up of different and mutually contradictory languages, refracting the different socio-ideological position of different social groups (Skidmore, 2000). In a similar manner, Voloshinov (1992) states that the word as a sign is an ideological phenomenon par excellence. In other words, the word accompanies all ideological creation and discusses every ideological act (Voloshinov, 1992). Each one of these ideological nuances crystallizes in different points of views that are present in the utterance. In an utterance, there may be more than one point of view, valuation, and stance, which demonstrate its alterity and polyphonic aspects (Ávila & Medina, 2012). From that perspective, Bakhtin states an interesting distinction between authoritative discourse and internally persuasive discourse (Matusov, 2007). Authoritative discourse refers to a monologic discursive practice in which a position is not open to debate. In contrast, an internally persuasive discourse is a dialogic discursive practice that acknowledges the primacy of dialogue and the impossibility of any word ever being final (Skidmore, 2000). According to Bakhtin, a person has an internally persuasive discourse when different ideas that represent different voices collide with each other in a dialogue that tests these ideas (Matusov, 2007). Consequently, a pedagogical challenge of teaching as a social, discursive practice is going beyond the traditional teaching which is based on transmitting information from a monological perspective. Conversely, teaching should point to a dialogism in which different voices are confronted and to which they must respond (Matusov, 2007; Skidmore, 2000).

3. METHODOLOGY.

Qualitative data was collected using semi-structured in-depth face-to-face interviews with a sample of seven teacher educators from four pre-service teacher education programs. Participants included a total of four females and three males. We point out that all of the participants agreed to be part of this study and signed informed consents that adhered to national ethical standards. Characteristics of this sample are showed in the following table.
The outline of the interview focused on teaching practices that teacher educators adopt, the teacher educators’ approaches to teaching about teaching, and a reflection on different aspects of teaching. Interviews lasted between 55 and 95 minutes, with an average interview being approximately 60 minutes in length. All of the interviews were audio recorded and fully transcribed in preparation for analysis.

The interviews were analyzed using the Dialogic Discourse Analysis method (DDA). The DDA is a form of discourse analysis based on Bakhtin’s ideas about dialogism, which sees discourse as permanently marked by subjectivity (Ávila & Medina, 2012; Montenegro, 2016; Montenegro & Medina, 2014). We used two analytical tools for identifying the speaker’s subjectivity: (a) looking for the ideological cores that symbolize a specific positioning within an utterance; (b) the select word usage in the process of constructing the utterance.

Regarding the ideological cores, the main categories of analysis used were Enunciators (points of view expressed in the utterance or an ideological position itself) and Subject of the Utterance (who is responsible for the utterance). In other words, the protagonist of the narration or the ideological center of reference from which it develops (Larraín & Medina, 2007). When we look at the words enunciated within the utterance, we can see that the word accompanies all ideological creation and possesses semiotic value (Voloshinov, 1992). From that perspective, the words act as speech highlights to identify the speaker’s ideological subjectivity. The speech highlights used in this analysis were pronouns, active voices, passive voices, subjקטives, modalities, and ventriloquisms (Ávila & Medina, 2012; Kerbrat-Orecchioni, 1993; Montenegro, 2016; Montenegro & Medina, 2014).

4. RESULTS.
This section reports the most valuable qualitative results found in the analysis of the data corpus. Interviewees are identified by a case number to protect their identity. Also, illustrative quotations are given from interviews to
represent the essence of the pedagogical discourse inscribed within the speech. The dialogic discourse analysis (DDA) of teacher educators’ speech showed that different pedagogical discourses coexist among teacher educators and teaching as a discursive practice involves the interrelationship of two elements: a discursive content taught and a discursive manner enacted.

Regarding the first element, more than monologic or dialogic discursive practice, the degree of dialogism increases in complexity, complementing various converging elements of the educational context. For instance, teaching content knowledge occupies a central place for some teacher educators. In other words, teaching with emphasis on delivering information is built on an ideological core that supports the importance of delivering contents from an "expert" teacher to a "novice" student who should eventually reach the same level. The following extract illustrates this positioning; in this utterance, the Enunciator “Teaching disciplinary content knowledge is fundamental” marks his evident positioning on the speech.

I pass a unit that I believe is essential. As an update on the subject. I teach them about culturalism. Relativism. Also about psychological approaches. Freud. Piaget. Kohlberg. (Case 1)

In contrast, we observe in other pedagogical discourses a dialogic stance in which the student teacher is discursively included as a key player in this process. For instance, case 3 conceives teaching as a dialogic discursive practice with a focus on student learning. She demonstrates this position with the Enunciator “Dialogic Teaching” which represents an approach mediated by speech involving both teacher educators and students learning.

What is the difference between you and the book? The difference is that you have different ways in which to explain something until the kid understands. (Case 3)

We can also see this degree of alterity in the discourse of case 4. She often marked within the speech the Enunciator “Students learn in different ways.” This ideological core shows the potential heterogeneity that the student can use when learning:

Sometimes I pretend that I don’t understand to show them that a traditional teaching style does not always work. At that moment the students realize that teaching is not only about transmitting information, but also about the other person learning. (Case 4)

Finally, in particular cases, the two aforementioned elements are complemented with the idea of the complexity of the future educational context. In this sense, not only the student is integrated, but also contextual aspects, such as the complexities of school. From this point of view, case 7
discursively shows teaching as a complex activity that is situated in context. From that position, the link between practice and theory is fundamental, highlighting various factors present in an educational context. The way in which this point of view is represented is evident in the following quotation:

And then those resources have to go hand in hand with that theory, but directed toward specific children; in other words, for a school, for a specific context […] because what we are talking about is precise to teach people to go into the classroom. (Case 7)

Concerning the second element, we are able to identify what voice predominates as a point of view within the pedagogical discourse. In an authoritative discourse, the teacher educator’s voice predominates inside the speech, and the speaker’s position is not open to debate. The next quotation exemplifies this positioning using a ventriloquism that recreates the predominance of the voice of the teacher educator in that situation. Notice how Case 2 marks within the speech that he teaches from his practical experiences as a school teacher; that is, he teaches from a monological stance.

I tell students “No. That is of no use to anyone. Keep only this.” Life has taught me, as a teacher, what is important and what is not important. (Case 2)

Conversely, in an internally persuasive discourse, the student teacher’ voice is incorporated into the speech. Moreover, teacher educators dialogue with this voice to reflect teaching processes or their teaching practices. In the next quotation, Case 6 emphasizes that his student teachers are a source for learning to teach. He marks this positioning through a ventriloquism that recreates the voice of the student teacher within the speech.

Sometimes students do not like a tough and drastic professor. And they tell me “Why are not you a bit more flexible?” I know perfectly well I could be more flexible. And that I should change it. (Case 6).

Finally, results show an interesting point to highlight: the pedagogical discourse in teacher educators is a dynamic process. In others words, even though they tend to adopt some particular discursive manner, at the same time they move from one mode to another. We identify this particular shift in cases 3, 5, 6, and 7. For example, the next quotation makes evident that Case 5 emphasizes that she teaches through modeling to point out how teaching must be done (an authoritative discourse positioning). Afterward, when she explains her pedagogical strategies, she promotes a dialogic discursive stance that involves the perspectives of her students in discussing different approaches to teaching (an internally persuasive discourse positioning).
I tell them that in the next class I will be modeling a reading comprehension class. And I do that to help them to see how it can be done [...] when I teach, I always stop during the class. “Okay, kids. Let’s see. Maybe I could have done something differently. What do you think?” (Case 5)

5. DISCUSSION.

The purpose of this study was to present teaching as a discursive practice materialized by a pedagogical discourse that represents the message about how teaching is enacted. Results show that the pedagogical discourse of teacher educators differ with a greater or lesser degree of dialogism and teaching as a discursive practice, involving the interrelationship of two elements: a discursive content taught and a discursive manner enacted.

Regarding the discursive content taught, it is possible to identify that content, as a message, materializes with different levels of alterity, complementing the content knowledge, the student as a key player in this process, and the complexity of the educational context in which student teachers will work. On the other hand, the discursive manner enacted oscillates from an authoritative discourse in which the teacher educator’s voice predominates to an internally persuasive discourse in which the teacher educator dialogues with the student teacher’s voice.

Thinking about teaching as a discursive practice implies new challenges for teacher education. First, the development of more sophisticated teaching practices requires to move beyond the simplistic notion of teaching as telling and learning as listening (Loughran, et al, 2016). On the contrary, the results of this study reflect teaching as a relational activity with greater or lesser degree of alterity and otherness. Second, the transition from an authoritative to internally persuasive discourse implies that teacher educators lose their authority and unilateral control over student teachers (Matusov, 2007). In other words, the development of an internally persuasive discourse is not a challenge only for the student teachers, but also for teacher educators. In fact, an internally persuasive discourse might be established through collaborative dialogue among teacher educators and student teachers, in which both incorporate the voice of the other (as a positioning) in order to reflect their own teaching practices.

Finally, these results have implications for both practice and research. In relation to practice, we suggest thinking teacher education programs as a discursive community in which different voices dialogue among them and developing reflective practices between students and teacher educators. With regard to future researches, we recommend continuing the research on teaching as a discursive practice, as a tool for improving teaching of teacher education.
educators as well as the design of strategies that support the teacher educators’ teaching practices from a dialogical perspective.

REFERENCES


Teachers' professional development in the context of a nation-wide project on reading literacy

Bara Olga Marentič Požarnik and Fani Nolimal

1University of Ljubljana, Faculty of Arts, Aškerčeva 2, Ljubljana, barica.marentic@guest.arnes.si
2National Education Institute Slovenia, Poljanska 28, 1000 Ljubljana, fani.nolimal@zrss.si

ABSTRACT
Mainly as a response to relatively low achievements of Slovenian 15-year olds in PISA 2009 measurements of reading literacy, a 2-year project Empowering learners through improving reading literacy and access to knowledge has been launched. The main goals were to improve motivation and reading literacy, especially reading comprehension in students of 9-year school, and also to reduce the gap in reading literacy of students from different SES. To achieve this, classroom and subject teachers in the participating schools were encouraged and trained to use more appropriate and varied teaching strategies and also to increase school-wide cooperation and responsibility.

In the final evaluation of the project, mainly »visible« results were observed and measured, especially the use of varied methods and student reading achievements. But for the sustainability of the project it is also important to know to what extent the cooperation in the project contributed to teachers' professional development. To get some insight into this, we carried out a series of interviews with focus groups of 3-4 teachers from eight of the participating schools. We had two key questions in mind: Has the project brought about any significant changes in acting and thinking about teaching, learning, relationships with students and colleagues that can be interpreted as signs of professional development? Which characteristics of the project could these changes be attributed to? In the interpretation of answers, we applied Korthagen's »onion models« of levels of change. The findings enable us a formulation of some guidelines for the management of similar projects in the future.

KEYWORDS: reading literacy, professional development, project evaluation, teaching reading

1. INTRODUCTION
Mainly as a response to relatively low achievements of Slovenian 15-year olds in PISA 2009 measurements of reading literacy, a 2-year national project Empowering learners through improving reading literacy and access to knowledge has been launched in 2011. Actually, there was even a negative trend observed in
Slovenian PISA results on reading literacy between the year 2006 (494 points), and 2009 (483 points), with the EU average being 489 points. In 2009, the baseline literacy level (PISA level 1) was reached by 79% of the Slovenian students (69% boys, 89% girls – this was one of the largest gender gaps). There were 21,2% low achievers (EU average 19,7%). (OECD, 2010)

The project aimed at improving reading motivation and reading literacy, especially functional literacy, in students of the 9-year comprehensive school (age 6-15), by influencing the school and family environment, quality of learning and teaching and literacy curriculum. (Nolimal, 2013: 18-19). It was managed by »strategic team« in The Slovenian Education Institute which included also a group of experts from higher education and educational research institutions. Each of the 42 cooperating schools had a »reading literacy team« of teachers and an outside tutor assigned to help with the introduction of diverse reading methods and other measures according to action research methodology. During the project, there were numerous in-service seminars and three national conferences that included theoretical input and workshops for and by the participating teachers.

2. THEORETICAL FRAMEWORK

The starting point was the definition of reading literacy as “understanding, using and reflection on written texts in order to achieve one’s goals, to develop one’s knowledge and potential and to participate in society”. (OECD, 2006; Štraus et al., 2006) The strategies to teach reading with comprehension were mainly based on cognitivism and social constructivism which meant a combination of direct teaching of diverse cognitive strategies of reading, teacher’s modelling and cooperative learning, including reciprocal teaching (Rosenschein, Meister 1994; Plut – Pregelj, 2013). Here, a meaningful dialogue of students with each other and with the teacher plays a decisive role. Metacognitive processes in students and teachers were fostered by guided reflection on one’s strategies and results. (Pearson 2013, cit. after Plut-Pregelj, 2013). The prerequisite of the project’s success was professional development of teachers not only in the use of different teaching strategies but also in changing their beliefs about teachers’ role and mission in accordance with Korthagen’s “onion” model of a good teacher. (Korthagen, 2004; Korthagen, Vasalos, 2008)

3. METHODOLOGY.

3.1. Purpose of the project

The main purpose was to improve the reading literacy and motivation for reading of students of Slovenian 9-year school (age 6-15), to raise their reading
achievement from baseline to functional level and as far as possible to the multiple level of literacy, which means »the ability to use reading and writing skills in order to produce, understand, interpret and critically evaluate multimodal texts«. (Straus et al., 2006). This was to be achieved by developing literacy curriculum with age-specific goals and strategies, by quality learning and teaching (using different reading techniques aimed at reading with comprehension in all subjects and also developing metacognitive processes and responsibility of students). At the school level, it meant developing competence and responsibility of all teachers to create a favorable learning environment, to implement more student centered teaching, to individualise instruction, to foster classroom dialogue and integrate strategies of effective reading, speaking and writing into everyday teaching. Measures were taken to increase the use of school libraries and to engage parents to read more with their children.

The focus of the present report is the professional development of the participating teachers. The two main research questions were:

- Has the project brought about any significant changes in acting and thinking about teaching, learning and relationships with students and colleagues that can be interpreted as signs of professional development of the participating teachers?
- Which characteristics of the project contributed the most to the teachers' professional development?

Action research methodology was used to help teachers introduce different approaches for developing reading literacy and evaluate changes. The tutors assigned to individual schools performed the role of »critical friends« to support the spiral process of action, reflection and improved action. (Carr, Kemmis, 1986; Kemmis, McTaggart, 1992; Marentič Požarnik, 2013a)

3.2. Instruments

For the purpose of evaluating the impact of different measures (approaches to teaching reading etc.), different questionnaires and other instruments were developed, among others: a questionnaire for students on reading motivation, a reading test for grades 1-3, questionnaires on using strategies of reading comprehension (for students of grades 4-6 and 7-9), a questionnaire for teachers on reading strategies they used in teaching, and an instrument for classroom observation. Also, the results of national tests in Slovenian in the final grade were included.

In the study of teachers' professional development (Marentič Požarnik, 2013b), a semi structured interview with 9 open questions was implemented. It was
carried out by two researchers in 8 schools, with groups of 3-5 teacher, and lasted for 70-90 minutes. The transcripts were analysed independently by the two interviewers and answers were categorised according to the research questions.

Also, an on-line questionnaire with 4 open questions for school tutors about their views on development at the school level was implemented, followed by a focus group interview. The teachers' answers were presented to tutors for cross-validation as an element of triangulation.

4. RESULTS

As presented in more detail in Nolimal (2013), reading motivation has increased, especially in younger students (70% are now »regular library users«, in comparison with 50% of older students). Furthermore, the majority of students have mastered the basic reading techniques; the appropriate reading speed was attained by 76.8% of students. But in reading comprehension, only 25.7% of students scored above average and there were large differences between schools. Classroom observations showed some excellent examples of integrated reading instruction, but in general, the use of basic strategies prevailed, like looking for key words and writing summaries. More complex strategies such as Pauk's strategy, reciprocal teaching and SQ3R were used less often, especially by teachers of subjects other than languages. (Pečjak, 2013)

The classroom dialogue connected to reading still lacked more higher order questions and time and opportunity for longer answers.

There were also large differences between schools regarding the cooperation among teachers of different subjects, frequency of peer observation and quality of subsequent discussions, level of reflection and metacognition. There were no significant differences found between the participating schools and other schools in the results of national tests in the Slovenian language and maths in the 9th grade which is encouraging as schools with under average reading achievements were included in the project. (Nolimal 2013: 40-46)

Data on the teachers' professional development, obtained by the help of group interviews, combined with the views of their tutors, were grouped under categories: Initial challenges, development of methods in teaching reading, changes in beliefs about teacher's role and sources of teachers' learning. Initial challenge for introducing teaching of effective reading strategies and fostering independent reading was the disappointment of many teachers with the prevalent student passivity. Students waited for the teacher to explain the meanings of texts to them. When they have to perform an experiment, they do not read the directions but instead constantly call the teacher and ask what they have to do (reported by a teacher of biology and chemistry). »When I requested for the first time that they find the meaning by themselves, it was a
real shock to them«. (classroom teacher). A teacher of English who had to substitute for a chemistry teacher explained to the students that she was not »almighty« and could not tell them everything as she was not an expert on chemistry. »Go to your classmates who seem to understand, they are going to explain to you how to read the periodical tables.«

As regards teaching methods used, beside fostering independent reading with comprehension, some teachers soon introduced reading in pairs – variations of reciprocal teaching (Rosenshine, Meister, 1994) and cooperative learning – students teaching one another. There was less whole-class teaching and more cases where students could choose the appropriate strategy and learn from each other. Some teachers also introduced elements of metacognition.

“They were glad to be able to choose strategy, and at the end of the lesson, we talked about their approaches, what was good and why, what were the difficulties. I learned a lot from this and I am glad to have take the time for these discussions.” (a teacher of Slovenian).

We found some other indicators of deeper reflection on the changing beliefs about roles of teachers and students:

“We (teachers) have to step back from time to time and let them give more to one another.” (a classroom teacher)

“The project caused a shift in my mind – I am not there to teach them, but to show them the way and help them when they go astray”. (classroom teacher)

Similarly, another classroom teacher noted: »I am now more of an organiser than giver of knowledge. I feel I am successful when they do many things on their own.

“I regard it a real success that my students and I jointly created the criteria of good reading and writing, and now they correct each other’s performance and products.” (classroom teacher, 2nd grade!)

Teachers tried to develop the awareness in students that not every strategy is appropriate in every situation and that the same strategy can be transferred to different subjects. They also started to be more flexible and student-centered in their teaching.

“I no longer feel guilty when I change my lesson plan in favor of developing reading in students.” (teacher of English)
And what was the most important source of teachers' learning in the sense of professional development? The teachers themselves attributed very little influence to their pre-service education («We did not hear much about reading, with the exception of initial readings»). Reading professional literature was not a source of important ideas for them either.

“It seems that most teachers themselves have difficulties in reading longer professional texts, with exceptions, of course.” (remark of a tutor).

This is in line with the view that teachers' ideas about teaching and learning usually do not stem from direct application of theory. (Korthagen, Vasalos, 2008)

Teachers regarded in-service courses as somehow more important for their learning, especially when active and experiential learning was included and courses were held at their school. On the other hand, one of the tutors made a sceptical remark: »Teachers accept workshops and examples of good practice, but they think it is enough to see, hear, do something at the workshop. When they return, they go back to their routine.« Hattie, in his large metaanalytical study, found quite a large average effect size of in-service training (0,62). The effect was larger when classroom observation with feedback was included; coaching, lectures with discussion and printed material showed much smaller effects. Programmes developed and supported by outside experts were more effective, especially when they were sustained through a longer period. (Hattie, 2013, pp. 143-145)

The teachers themselves felt the most favorable impact on their development in those schools which developed a »learning community«, with genuine cooperation between the project team of teachers, the headteacher, and the outside tutor. This also meant an »open door« policy, with frequent mutual classroom visits and subsequent discussions. An important prerequisite was a climate of trust; in two of the participating schools, they still regarded classroom visits as a kind of control, and fear of criticism prevailed, especially when the classroom was visited by the outside expert. On the other hand, in three of the schools, the teachers succeeded to form a real learning community or »community of enquiry«. (Zellermayer and Tabak, 2004) A lot of formal and informal exchanges evolved, linked to positive emotions and shared enthusiasm, even with short remarks in the corridors such as »What I tried today was really successful, I recommend it«. Here, the headteachers played a key role in creating a safe environment.
5. DISCUSSION

The project had clear goals - improving reading motivation and reading literacy in students by different measures, especially through teachers' professional development. The project has brought some encouraging results. It is interesting to note that Slovenian students' PISA results in reading literacy have since improved - in 2015 they were significantly better than in 2009 and 2012, when they were below the average of OECD countries (EU Final Report, 2012). In 2015, there was an increase of 24 points compared to the results in 2012 (from 481 to 505 points, OECD average being 493). (Štraus et al., eds., 2016). Of course, this can not be attributed entirely to the influence of the project as the issue is much more complex, but it is nevertheless encouraging.

We need further research to explain why do such large differences between schools persist. The research on teachers' professional development during the project provides some indication that one of the most important prerequisites for teacher learning is a school climate that fosters mutual learning, creating a community of teachers who are active seekers and users of feedback about their teaching and are not afraid of negative feedback. This is not always easy to achieve, especially not in one project.

6. CONCLUSIONS

Of course, the ambitious goal to improve over-all reading literacy can not be achieved during one two-year project, it is a much more long-term endeavour. It is also not a matter of a single approach, as some would expect; only a good combination of many measures and favorable circumstances makes it successful. It takes a lot of critical self-evaluation combined with deep reflection also on the part of organisers of such projects in order to bring about real improvement. One danger we face in Slovenia is too large a number of always new (EU) projects that we embrace every year and tend to forget the lessons from the previous ones. We should not lose perspective on what is really important - and creating favorable conditions for learning and development of teachers certainly is.

REFERENCES


TEACHERS’ PROFESSIONAL DEVELOPMENT IN THE CONTEXT OF A NATION-WIDE PROJECT ON READING LITERACY


Teacher Learning with Assessment in Singapore: Classroom Assessment as Searching and Researching into Teaching

Heng Jiang

Assistant Professor, Curriculum, Teaching, and Learning, National Institute of Education, Nanyang Technological University, 1 Nanyang Walk, 637616, Singapore
heng.jiang@nie.edu.sg

ABSTRACT
This qualitative study provides a fresh look at the classroom assessment practices that teachers initiate and use for teaching in one elementary school in Singapore. While there is abundant research discussing classroom assessment, there are not many studies exploring how teachers use information collected from classroom assessment to promote student learning and undertake their professional development in this aspect of pedagogy. Rather than proposing classroom assessment techniques for teachers to implement, this study repositions teachers as the owners making use of their classroom assessment practices in their professional discussions to improve teaching and learning. The initial findings show that teachers acquire knowledge and skills when working with the curriculum, diverse students, and colleagues via the deliberate practices with and discussions on classroom assessments. The findings provide us with insights into how teachers’ understanding of their students, the content, and teaching changes as they incorporate assessment practices into their professional discussions.

KEY WORDS: Teacher Learning, Classroom Assessment, Discussion

1. INTRODUCTION
This research examines how a group of mathematics teachers in Singapore learn from their classroom assessment practices. It is based on a small portion of the data from a research project involving teachers participating in professional development via lesson study [lesson study is a professional development activity that engages teachers to work together to develop a lesson plan, teach and observe the lesson, and discuss how to improve the lesson and/or change the school (See Fernandez & Yoshida, 2004]. One team of teachers manifested changes in their perceptions about students and teaching when incorporating classroom assessments in the professional discussion. The initial findings from this study suggested that classroom assessment can work as a useful tool for professional discussion and promote teacher learning.
2. THEORETICAL FRAMEWORK

A fundamental question in the field of teacher education is how to support teacher learning in their classrooms (Putnam & Borko, 2000; Timperley & Alton-Lee, 2008). Teacher learning refers to an ongoing process of engagement in outcome-based activities that result in changes in teacher practices and changes in teacher beliefs regarding teaching and learning (Putnam & Borko, 2000). Recent research calls for more practice-based teacher learning (Ball, Ben-Peretz, & Cohen, 2014; Ball & Forzani, 2011; Janssen, Westbroek, & Doyle, 2014). Representatives of practice-based approaches propose that teachers learn through a core set of high-leverage instructional practices, such as eliciting student ideas, leading a discussion, explaining and scaffolding, creating a classroom culture, helping students work, and the assessment of student learning (Ball & Forzani, 2007; Forzani, 2014).

Among all the high-leverage practices, classroom assessment serves as an important daily task and an engaging topic for teacher discussion, and it provides immense opportunities for their professional learning (Jiang, 2015; Jiang & Hill, in press). Classroom assessment is “a broad and evolving conceptualization of a process that teachers and students use in collecting, evaluating and using evidence of student learning for a variety of purposes, including diagnosing student strengths and weaknesses, monitoring student progress towards meeting desired levels of proficiency, assigning grades, and providing feedback to parents” (McMillan, 2013, p. 4). Classroom assessment practices can include a broad range of measures, including structured quizzes, student seatwork, feedback, and more informally posed oral questions. In this particular study, I focus on one classroom assessment practice—the analysis of typical errors in students’ schoolwork. This research considers the following question: How do classroom assessment practices and related professional discussions influence teachers’ learning about teaching mathematics to diverse students? I employ qualitative research methods to investigate this question.

3. METHODOLOGY

The study was based on one elementary school (Gladstone Elementary School, Pseudonym), which serves low-income neighborhoods (most residents rent an apartment in these areas) in Singapore, with 900 pupils and 60 teachers/staff. The participants included a group of grade 4 mathematics teachers (n = 7, one male teacher and six female teachers) in their regular discussions every three weeks during one school semester in 2016. Each discussion session was 90–120 minutes, usually facilitated by the Mathematics Subject Head, Ms. P, and a university researcher, Dr. C.

One of the 1-hour research lessons was also observed with a grade 4 class of 20 students, including nine boys and 11 girls. Ms. T, with about six years of
teaching experience, conducted the research lesson. Interviews were conducted with individual teachers for 45–60 minutes. The transcribed data were analyzed using the “key incident” approach in which important events (usually recurring events, events that have sustaining influence) are identified from the observation notes and placed about other incidents, events, or theoretical constructs (Wilcox, 1982). Then, these key incidents were summarized on matrix displays using techniques suggested by Miles, Huberman, and Saldana (2013) for standardizing and processing qualitative data.

4. FINDINGS
The initial findings of this study show that the teachers benefited from the professional discussions on the information collected from classroom assessment. (1) They learned to approach and reveal student thinking rather than pose teaching procedures that seemed best to the teacher. (2) Some of the teachers realized that they had limited understanding of the content of teaching. With the facilitator’s help, they noticed that small changes in teaching could take effect in helping or hindering students’ understanding of mathematical concepts.

4.1. Approaching students’ language and revealing students’ thinking
At the beginning of the semester, the teachers brainstormed “key attributes of an effective problem-solver.” Some teachers said that the students lacked logical thinking. The students “may not apply thinking skills and strategies to solve math questions” (Ms. S, February 16, 2016). Some mentioned that the students were not exposed to word problems yet. Most teachers suggested that students with poor language skills have issues to “comprehend a problem and manipulate data” (Ms. F, February 16, 2016). Later, in one of the discussion sessions, the teachers met to analyze two typical errors students made while solving the math problem discussed below and tried to identify students’ misconceptions:

Yilang has a sum of money. He spends 3/10 of his money on books, 2/5 of his money on stationery, and the remaining amount of $36 on a t-shirt.
A. What fraction of Yilang's money is spent on the books and stationery?
B. Find the sum of money Yilang had at first.
Ms. P projected one student’s response on the screen and the teachers started to discuss it. This student did section (A) correctly but failed to solve the second section. Below is an excerpt from the teachers’ discussion:
Ms. P: Part A is … to scaffold the addition of these two to get, uh, seven tenths, and for the child to see that in one whole there is ten out of ten, and if this is the amount that is spent on the books and stationary, then the remaining would be … three out of ten … but there is an assumption that, uh, what’s left is one unit.
(Long pause). So, this is one example … they thought 36 dollars was one unit …
Ms. M, is that your group?
Ms. M: My group.
Ms. T: Ok. Did the children expressed why they equate one unit with 36 dollars?
Ms. M: He's not able … He got stuck on this question for very long. … [T]he understanding is not there when I ask him why did you times, what is it that you’re doing. So, he- because he can’t link the three-ten to actually the remainder. So he actually just takes [took] one. He takes [took] one t-shirt to assume that it’s one unit. … So, I have a few that did this method [branching], … so they are actually quite confused, partly is because they have been learning the branching method, and they forgot that- but they realize three-tenth of the money- and I- because I’ve been telling them, I think I’ve been drilling it into them.
Ms. P: So they are not able to apply the branching strategy …
Ms. F: Maybe you recently taught this, so they thought that it is related to your recent lesson on branching method.

…
Ms. T: Maybe it’s the keywords, remaining confusing for them … consider revising the wording.

…
Ms. F: Yeah. And, ok, he- perhaps he- he understood about the three units, but he couldn’t see that the entire whole is … is ten units. Yeah.
(Transcript of discussion, February 23, 2016)

Again, the teachers recognized the difficulty in understanding the word “remaining.” But in contrast to their earlier attribution to students’ limited language abilities, they proposed a more nuanced understanding of students’ thinking. Through the discussion on the student’s error, the student’s “understanding [of the concept] is not there.” It may be due to the misapplication of a newly learned problem-solving strategy—“branching.” And it may be that the wording of the problem is “confusing.” It may also be due to the students’ conformity to a certain way of thinking by being drilled into it. In
the end, they zoomed in to discuss how this typical error reflects students’ misunderstanding of not just the word “remaining” but what students think of the whole of the ten units. In this way, although still unsure, the teachers seemed to move away from vague assumptions about students’ limited language capacity by trying to get close to students’ thinking and understanding.

4.2. “Small things overlooked (by teachers), big jump for them (students)”

As described above, by examining closely and discussing students’ work, the participants tend to use alternative perspectives to understand students’ thinking behind the mistakes. But the discussion remains at the surface level. The following example shows that discussing students’ typical misconceptions, with Dr. C’s prompts, can also help teachers reflect upon their own thinking and understanding of the taught content:

Ms. F: Perhaps he understood about the three units, but he couldn’t see that the entire whole is … is ten units. Yeah.
Ms. P: Ok, but because the system was given here.
Ms. C: No, but I don’t think he understands the three units. He got the three units; he took ten, the denominator is ten minus seven numerator. That’s how he got the three.
……
Dr. C: You remember how they learned fractions in the beginning?
Ms. T: Fraction of the whole?
Dr. C: Ah, a fraction of a whole. Now, when you do a fraction of a whole, what is the important point that you were trying to drill into the students?
Ms. F: Equal parts.
……

Then, Dr. C advised the teacher to review the definition of a fraction (*Fraction is a number that shows the relationship between a part and a whole*) in the teachers’ guide provided by the Ministry of Education.

(Transcript of discussion, February 23, 2016)

The teachers examined this definition of a fraction as a “relationship between a part and a whole” together and found that they may have simplified the concept (to “equal parts of a whole”) too much in their teaching. They started to wonder at the importance of strengthening the concept of the “whole” when clarifying students’ misconceptions about fractions that manifested in the typical mistakes seen in student work. And they realized that this concept of “whole” was somehow missing in the lesson plan. Ms. P commented, “All through this small little bits that we overlook and we assume……It’s a very
huge gap that they have to jump over” (Discussion session, March 8, 2016). It seems that this reflective practice initiated by examining students’ work may have helped teachers review their content mastery and teaching practices rather than just gazing at students’ performances. Teachers’ thinking and students’ thinking are the two ends that are equally important for teaching. The collective effort of bridging both ends may help teachers pinpoint where to start from to improve student learning and their teaching.

4.3. Others’ perspectives: seeing classroom teaching in a new light

As the excerpts above show, Dr. C plays an important role in eliciting teachers’ thinking, providing alternative perspectives, and giving advice/resources to teachers during the discussion. Teachers mentioned learning greatly from his insights. But he is not the only resource person for teachers to learn from about the content, the students, and their teaching. They have learned much from each other as well. Ms. P, as the Subject Head, has sorted out the materials for discussion and supported the team members during the process. Mr. S and all the other colleagues also offered help when Ms. T had to figure out the students’ common misconceptions to tackle with in the research lesson. Ms. T remarked: “So it’s actually very beneficial to hear from the other more experienced teachers—you know—what are the common pitfalls that the students might fall into, and how we can actually work around it to reach out to them.” Such insights also helped her to see her teaching in a new light and center her focus on students’ understanding of the concepts. Regarding the whole process of working with colleagues to discuss students’ work in preparation for teaching, she said “[it]…brings me … to this very conscious—uh—perspective to make sure that the children understood what they’re doing, instead of just focusing on the algorithm.” Such a fruitful discussion seems to open windows for these professionals to examine their own teaching and learn from each other’s insights.

5. DISCUSSION/IMPLICATIONS

This study taps into the interactive process of using classroom assessment as a tool for professional development. Teachers have long been criticized for not being able to conduct quality classroom assessment (Campbell, 2013). However, these prior studies ignore the real function of classroom assessment as instant feedback on student learning and instruction rather than crafting a perfect instrument to evaluate the learning and teaching in the classroom as if it is fixed. If this instance of classroom assessment is not valid or relevant, the follow-up adjustments can always help to correct it (Shepard, 2000). Such adjustments, useful for a more accurate understanding of learning and instruction, probably can only be heartily adopted by teachers when they
emerge from the process of collecting information using existing assessment approaches, closely examining such information to understand student thinking, and challenging each other’s thoughts in professional discussions and practices. Thus, this study positions teachers as agents who not only devise and implement classroom practices but also revise their understanding of students, content, and teaching.

In addition, this study further develops the idea of high-leverage practices (Ball, Ben-Peretz, & Cohen, 2014; Forzani, 2014) for teacher learning and shows that high-leverage practices such as classroom assessment do not automatically help teachers learn. They have to be accompanied with in-depth professional development activities that engage teachers’ dialog and deliberation about student learning and their teaching. The carefully prepared discussion sessions supported with selected student work and the presence of a university researcher pushed the teachers to examine their prior assumptions and practices and exchange ideas about what to do with them.

6. CONCLUSION

This study explores how teachers learn from their professional discussions on the information collected from classroom assessment. It is found that teachers learn from the in-depth dialog on the misconceptions behind students’ typical errors in solving assessment problems. It provides a fresh perspective for examining the discussion on classroom assessment as a tool to (re)search students’ and teachers’ thinking and meaning-making. Further studies are needed for us to understand various classroom strategies for teachers to collect useful and valid data for in-depth discussions and follow-up practices to improve teaching and learning.

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Mediation Learning in Classroom: A study with teachers and trainees

Tatiane Lebre Dias¹, Sônia Regina Fiorim Enumo², and Kelly Ambrozio Silveira³

¹Federal University of Mato Grosso
tatianelebre@gmail.com
²Pontifical University of Campinas
enumo.sonia@gmail.com
³Federal University of Espírito Santo
kellyasfs@gmail.com

ABSTRACT
The Mediated Learning Experience theory, based on Vygotsky and Feuerstein, proposes criteria to evaluate and promote mediation in the teaching-learning process. This study compared the pedagogical mediation of Pedagogy teachers and trainees. A total of 78 classes (30 minutes, average) of 3 teachers (24 lessons, 8 lessons / teacher) and 4 trainees (48 lessons, 12 lessons / trainee) were recorded on a four initial series video in the State of Mato Grosso Elementary School in Brazil. The recordings were transcribed and the data categorized according to a checklist with 9 previously elaborated behavioral categories based on the observation of teacher-student interaction, with mediation criteria organized in 3 behavioral macro categories (C1-Mediation, C2-Regulation, C3-Responsivity). There were: a) in general, more behaviors as: Presenting task questions, Explaining the interaction purpose, Emphasizing the task importance, and Requesting self-regulation; and lower frequency of Make temporal cognitive bridges, and Give corrective feedback; b) teachers presented more C2-Regulation; and trainees, C1-Mediation and C2-Regulation, in the same proportion; c) C3-Responsivity was less observed, especially among teachers. There were meaningful differences between: a) for trainees, with more Emphasizing the significance of the task importance, Responding to the questions and Responding to the student's request; and less C3-Responsivity; b) for teachers, more Give positive feedback and C2-Regulation. These differences between teachers and trainees mediation may be due to variables such as professional time, work stress, coping and teaching engagement, suggesting new studies on the subject.

KEYWORDS: Mediation, Teacher, Trainee.

1. INTRODUCTION
Brazil has an estimated population of 204,450,649 inhabitants, living in a territory of 8,515,767.049 km², with five regions, having 15,442,232 inhabitants in the Midwest Region (Brazilian Institute of Geography and Statistics, Brazil 2015). It is a young country, with 37.7% of the population between 30-59 years
of age and 27.5% between 15-29 years of age (Geography Statistics Brazilian Institute Brazil, 2014).

In a continental-sized country, access to school becomes a fundamental issue. In 2015 there were 48,616,812 enrollments, being 7,960,073 in Child education (nursery and pre-school) and 27,825,338 in elementary school (1st to 9th grade), equivalent to the school rate of 98.5% from 6 to 14 years of age; but 3 million children were school dropouts (Brazilian Institute of Geography and Statistics, Brazil 2015). The number of teachers has increased by 2,187,154 in 2015, being 528,308 in Child education and 1,415,588 in Elementary School (Ministry of Education, Brazil 2016a). The first grade teachers’ training is done in pedagogy undergraduate courses, lasting four years or 3,200 hours, being 2,800 in theoretical-practice classes, 300 internship hours and 100 hours of theoretical-practice classes (National Council of Education, Brazil 2006). The training emphasizes the teaching methodology of the Portuguese language and mathematics basic contents than the students’ development and learning process, with little depth in the Educational Sciences (Franco, 2007). The teaching in the country is ruled by the National Curriculum Parameters (PCN), respecting the regional and socio-cultural diversities (Secretary of Basic Education, Brazil 1997). However, the students’ performance is low when it comes to national and international assessments (Ministry of Education, Brazil 2016).

In this context, the academic performance could be changed with a better teachers’ training, which includes the ability to mediate learning. This study analyzed the pedagogy students’ and teachers’ pedagogical mediation in the classroom with early grade Elementary School students.

2. THEORETICAL FRAMEWORK
The Mediated Learning Experience (MLE) was developed by Reuven Feuerstein and collaborators allowing to evaluate the mother-child and teacher-student interactions (Jensen & Feuerstein, 1987). Mediation is a context of cultural transmission, allowing for the development of complex cognitive functions. Unlike, a conception of the learning process based on direct exposure to stimulus, MLE includes the presence of a mediator, who is interposed between the stimuli and the organism, and between this and the response to interpret and give meaning to the stimuli, making learning an intentional and meaningful process (Tzuriel, 2013). This special type of interaction depends on the interactional context, an intentional action and planning on the Mediator’s part, which will provide an appropriate learning for cognitive changes (Laurus, Falik, & Feuerstein, 1998).
The learning process mediation is carried out according to certain characteristics of MLE: 1) Intentionality and Reciprocity; 2) Transcendence; 3) Meaning; 4) Behavior Regulation; 5) Competence Feeling Mediation; 6) Sharing; 7) Individuation/Psychological Differentiation; 8) Goal Seeking, Goal Setting and Goal Achievement; 9) Challenge; and 10) Change (Jensen & Feuerstein, 1987). The first three criteria are necessary and enough to be considered an MLE.

New theoretical and methodological contributions were added to MLE, such as the Mediated Learning Experience (MLE) Rating Scale (MLERS) (Lidz, 1991, 2003). This scale incorporated the "mediation of an optimistic alternative", adding new interpretations to the original concepts. It can be applied to parents and teachers, being prescriptive for interventions. It consists of 12 criteria indicative of a favorable context for learning mediation, such as: 1) Intentionality, 2) Meaning, 3) Transcendence, 4) Sharing (Joint Regard), 5) Experience sharing, 6) Competence (Task Regulation), 7) Competence (Praise/Encouragement), 8) Challenge, 9) Psychological Differentiation, 10) Contingent Responsivity, 11) Affective Involvement, 12) Change (refer to Lidz, 1991, p. 106-111, for definitions).

In Brazil, the MELRS was implemented by Cunha, Enumo, & Canal (2006) to analyze the maternal mediation pattern of children with visual disabilities, resulting in a system with 36 behavioral categories, organized into four levels of mediation for each of the 12 scale criteria. This version has been adapted for use with public education teachers of early degrees (Nascimento, Dias, & Félix, 2012), being used in this study.

3. METHODOLOGY
The sample included seven public Elementary School educators in Mato Grosso, Brazil, with 39.65 (SD = 5.47) years old, divided in: (a) three teachers from the 1st grade, aged 25-43 years, and 6-35 years (M = 17.7, SD = 12.1) teaching time; b) four pedagogy trainees, aged 20-41 years of age, teaching to 1st to 3rd grade.

In this study, 72 classes/observations were recorded on audio and video related to 24 teachers’ classes (M = 8 class/teacher) and 48 trainees’ classes (M = 12 class/trainee), for 30 minutes on average, at different times (beginning and end of the class, before and after the break), without prior notice. The trainees’ classes were supervised by a teacher. The classes had 30 students on average.

The total of 36 recording hours (2,160 minutes) were transcribed. The agreement calculation between two observers with knowledge on MLE was performed, analyzing the first class of each participant. Behaviors with index
agreement ≥75% were maintained. A checklist was made - the "Observation inventory of teachers’ mediating behaviors", with 3 mediation macrocategories (C1-Learning Mediation; C2-Regulation; C3-Responsivity, 6 mediation categories/criteria and 9 mediational behaviors (Table 1).

<table>
<thead>
<tr>
<th>Macro categories</th>
<th>Categories/Mediation criteria and behaviors</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1-Mediation</td>
<td>1) Intentionality - Explaining the interaction purpose (EIP)</td>
<td>- After listening to the story, you will retell it.</td>
</tr>
<tr>
<td></td>
<td>2) Significance - Emphasizing the task importance (ETI)</td>
<td>- It is very important what I will say.</td>
</tr>
<tr>
<td></td>
<td>3) Transcendence - Make temporal cognitive bridge (MTC)</td>
<td>- Remember! We saw this yesterday. We are going to present tomorrow.</td>
</tr>
<tr>
<td>C2-Regulation</td>
<td>4) Competence task regulation - Giving corrective feedback (GCF)</td>
<td>- You are supposed to perform the assignment sitting down.</td>
</tr>
<tr>
<td></td>
<td>- Requesting self-regulation (RSR)</td>
<td>- John! The head went small; we will do it again.</td>
</tr>
<tr>
<td></td>
<td>- Presenting task questions (PTQ)</td>
<td>- What is the syllable that we are studying?</td>
</tr>
<tr>
<td></td>
<td>5) Competence praise-encouragement - Give positive feedback (GPF)</td>
<td>- Oh! The ballerinas’ skirt was around, very well!</td>
</tr>
<tr>
<td>C3-Responsivity</td>
<td>6) Contingent responsivity - Responding to the question (REQ)</td>
<td>- (Student) Am I supposed to take notes? (Teacher) Yes, you are.</td>
</tr>
<tr>
<td></td>
<td>- Responding to the student's request (RSR)</td>
<td>- (Student) Can I go to the restroom? (Teacher) Yes, you can.</td>
</tr>
</tbody>
</table>

Table 1: Characterization of the observation inventory of the Teacher’s Mediating behaviors.

The teachers’ and trainees’ behaviors frequency of each category and macro categories were calculated, obtaining the average and standard deviation of each group, and applying the Mann-Whitney test to the intergroup differences and the Wilcoxon test to the intra-group differences (p-value .05).

4. RESULTS
The sample of seven educators showed a higher increased frequency of mediating behaviors for Presenting task questions-PTQ, Explaining the interaction
purpose-EIP, Emphasizing the task importance-ETI and Requesting self-regulation-RSR. The least frequent behavior was: Make temporal cognitive bridge-MTC and Give corrective feedback-GCF (Table 2).

The teachers had significantly more C2-Regulation, while the trainees had a higher average of C1-Mediation and C2-Regulation. The C3-Responsivity was significantly less observed in both groups. The trainees showed significant differences in these behaviors: Emphasizing the task importance-ETI; Responding to the question-REQ and Responding to the student’s request-RSR and C3-Responsivity. The teacher showed significant difference in Give positive feedback-GPF (Table 2).

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>Total</th>
<th>Teachers</th>
<th>Trainees</th>
<th>Teacher x Trainee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>M</td>
</tr>
<tr>
<td>C1Mediation</td>
<td>18.1</td>
<td>10.9</td>
<td>3.926</td>
<td>15.8</td>
</tr>
<tr>
<td>Explaining the interaction purpose-EIP</td>
<td>26.9</td>
<td>17.7</td>
<td>1.942</td>
<td>30.2</td>
</tr>
<tr>
<td>Emphasizing the task importance-ETI</td>
<td>26.2</td>
<td>20.3</td>
<td>1.888</td>
<td>16.0</td>
</tr>
<tr>
<td>Make temporal cognitive bridge-MTC</td>
<td>1.3</td>
<td>1.7</td>
<td>96</td>
<td>1.3</td>
</tr>
<tr>
<td>C2- Regulation</td>
<td>19.7</td>
<td>11.4</td>
<td>5.697</td>
<td>22.3</td>
</tr>
<tr>
<td>Requesting self-regulation-RSR</td>
<td>24.5</td>
<td>20.9</td>
<td>1.771</td>
<td>29.8</td>
</tr>
<tr>
<td>Give corrective feedback – GCF</td>
<td>4.7</td>
<td>7.2</td>
<td>345</td>
<td>5.1</td>
</tr>
<tr>
<td>Presenting task questions – PTQ</td>
<td>40.3</td>
<td>27.1</td>
<td>2.904</td>
<td>38.5</td>
</tr>
<tr>
<td>Give positive feedback – GPF</td>
<td>9.4</td>
<td>10.8</td>
<td>677</td>
<td>15.8</td>
</tr>
<tr>
<td>C3- Responsivity</td>
<td>9.6</td>
<td>6.8</td>
<td>1.328</td>
<td>5.1</td>
</tr>
<tr>
<td>Responding to the question-REQ</td>
<td>9.9</td>
<td>9.0</td>
<td>718</td>
<td>4.4</td>
</tr>
<tr>
<td>Responding to the students’ request-RSR</td>
<td>8.4</td>
<td>6.7</td>
<td>610</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Note. *p ≤ .01; **p ≤ .001, Mann-Whitney test.

Table 2: Mediational teachers’ behaviors (n = 3) and trainees (n = 4) (N = 72 observations)
Taking into account the trainees’ mediating macro categories, significantly more C1-Mediation and C2-Regulation than C3-Responsivity was observed (Table 3).

<table>
<thead>
<tr>
<th>Macro categories</th>
<th>M</th>
<th>SD</th>
<th>n</th>
<th>Comparison</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample total (n = 72)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1-Mediation</td>
<td>18.1</td>
<td>10.9</td>
<td>3.926</td>
<td>C1XC2</td>
<td>-1.79</td>
</tr>
<tr>
<td>C2-Regulation</td>
<td>19.7</td>
<td>11.4</td>
<td>5.697</td>
<td>C2XC3</td>
<td>-6.57*</td>
</tr>
<tr>
<td>C3-Responsivity</td>
<td>9.2</td>
<td>6.8</td>
<td>1.328</td>
<td>C3XC1</td>
<td>-6.35*</td>
</tr>
<tr>
<td>Teachers (n = 24)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1-Mediation</td>
<td>15.8</td>
<td>13.1</td>
<td>1.143</td>
<td>C1XC2</td>
<td>-3.68*</td>
</tr>
<tr>
<td>C2-Regulation</td>
<td>22.3</td>
<td>16.0</td>
<td>2.145</td>
<td>C2XC3</td>
<td>-4.28*</td>
</tr>
<tr>
<td>C3-Responsivity</td>
<td>5.1</td>
<td>6.1</td>
<td>247</td>
<td>C3XC1</td>
<td>-4.02*</td>
</tr>
<tr>
<td>Trainees (n = 48)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1-Mediation</td>
<td>19.3</td>
<td>9.6</td>
<td>2.783</td>
<td>C1XC2</td>
<td>-0.97*</td>
</tr>
<tr>
<td>C2-Regulation</td>
<td>18.5</td>
<td>8.1</td>
<td>3.552</td>
<td>C2XC3</td>
<td>-5.00*</td>
</tr>
<tr>
<td>C3-Responsivity</td>
<td>11.2</td>
<td>6.2</td>
<td>1.081</td>
<td>C3XC1</td>
<td>-4.85*</td>
</tr>
</tbody>
</table>

Note. *p ≤ .001, Wilcoxon test.

Table 3: Comparison between mediational macro categories in teachers and trainees (N = 72 observations)

The teachers showed meaningful differences in all the macro categories, with more C2-Regulation than C1-Mediation and C3-Responsivity (Table 3).

5. IMPLICATIONS/DISCUSSION

These mediation behaviors of seven early grade Elementary School educators in Mato Grosso State, Brazil, observed along 72 classes, showed higher average of regulatory behaviors of C2-Regulations (Presenting task questions - PTQ, Requesting self-regulation - RSR and C1-Mediation (Emphasizing the task importance - ETI; Explaining the interaction purpose - EIP, highlighting the trainees through C1-Mediation. However, both teachers and trainees showed the lowest average of C3-Responsivity to the students’ requests. The greatest concern in regulating or controlling the students’ behavior in the classroom, to ensure the content transmission, was the most typical pattern of this sample. Such results may be related to the type of curriculum, which emphasizes the knowledge transmission focused on content, not only regarding the teachers’ training (Franco, 2007). This content based curriculum doesn’t highlight the learning process or the cognitive functions development. Feuerstein and Falik (2010) have already warned about the consequence of this approach based on content or curriculum, which makes the learning mediation difficult and creates differences among teachers in their attempts to ensure the content learning by the student. The teacher’s regulatory behavior can be associated with this approach, with less investment in the students’ thought processes.
The trainees had significantly more C1-Mediation behaviors, looking to show content importance to be learned by students, as a motivational strategy in a context in which a more competent observer, in this case, a supervisor, was present. It did not occur in the teachers’ sample. This strategy aims to promote the students’ engagement in the process, which could ensure the content learning, thereby promoting their own performance as a teacher, as well as assuring a better supervisor’s assessment.

On the other hand, another criterion that characterizes an interaction as a learning mediation is to Make temporal cognitive bridge-MTCB, trying to go beyond the local context, was less frequent in this sample. This mediation component promotes the learning generalization, transferring content to other contexts, in the same way as studies on the interaction mother-child (Tzuriel, 2013). The teachers’ and trainees’ difficulties to extend or go beyond the content may result from their training, with a profile centered on the content not on the learning process. The excess of disciplines, the diversity in teacher’s training, which includes the preschool and the early grades, and especially the little practice time in the classroom, inhibit the trainees’ possibility to integrate and apply the knowledge presented in their course. The large number of students in class is one of the teachers’ stressors (Silveira et al., 2014). It limits their action to regulate the classrooms’ 87 behaviors and decreasing their responsiveness to the students’ demands. These teachers’ working conditions also obstruct the teacher’s C3-Responsivity and involvement with the student, not promoting the functional support offered, as proposed by a dynamic model of scaffolding (Ensing, Aalsvoort, Geert, & Voët, 2014). Other studies should be carried out involving a larger number of teachers, as well as the students’ participation, as a way to investigate other mediation aspects such as “reciprocity”.

6. CONCLUSIONS
The three main learning mediation criteria (Intentionality, Meaning, and Transcendence), classified in this study in category C1-Mediation, were observed in the interaction of teachers and trainees. However, there was a lower frequency of Transcendence, and consequently, lower promotion of development of cognitive functions for the learning generalization. These mediation components should be part of the teachers’ training, as part of a qualification in Sciences of Education and not just in Pedagogy, which promotes a focus more on the process of overall children’s development, with a profile aimed at research and educational management. The theoretical and methodological perspective of this study allowed to characterize the mediation between teachers and trainees and their students. It
may support the proposition of specific interventions for mediation aspects in the teaching-learning process.

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The mediation of Philosophy subject matter. A comparative case study

Laura Sara Agrati

University of Bari Aldo Moro
laurasara.agrati@gmail.com

ABSTRACT
In order to improve student learning, the teacher's mediation function works not only at the communicative and relational level but also as 'integration' of subject matter.
The study, referring to the theoretical model of 'pedagogical content knowledge' and the construct of 'mediation', deals with the integration process of the school subject matter.
The contribution presents research design and first results of an exploratory study accomplished in a High school at University of Bari 'Aldo Moro'. The research is inspired by the 'collaborative' approach and uses a multiple-cases design through an in-depth study on mediation procedures of two philosophy teachers about same content knowledge.
The analysis refers to specific levels of teacher practice: the integration of school books and worksheet with other resources (personal notes, digital repository etc.) - using the document analysis; the choice of mediators (active, iconic, symbolic, real or virtual) - using video observation and interviews.
First findings are highlighting aspects dealing with the dynamic of visual presentation, the communicative and technical interactivity, the support of learning by multiple resources (textual and graphical annotation, explanation, focusing etc.).
These findings will be useful to the operational definition of the unit of analysis in subsequent study to be conducted on a broader basis of investigation.

KEYWORDS: teacher mediation, PCK, case-study, semiotic.

1. INTRODUCTION. MEDIATION PROCESS
'Mediation' is a radical concept, designating the primary disposition of man toward the world (Damiano, 2007 p. 25). According to some evolutionary scientists, mediation would be inherent human quality because of immaturity and incompleteness of man (Bolk, 1926). In a broader perspective and form a metaphysical point of view, the philosopher C.S. Peirce (1887) considers mediation as the original way of reality to giving itself and the only way in which it’s possible to enter into relationship with.
From the perspective of intentional education, mediation would correspond to the complex macro-process of socialization that takes place first of all in the
family (Levi-Strauss, 1949) then at school (Petitat, 1982) and provide man with cultural tools and social rules in order to live and survive.

On a specifically didactic level and by reference to the socio-constructivism (Altet, 1997.; Latour, 1989) and the reflection on *tiers éducatif* (Xipas, Fabre, Hétier, 2011), the mediation process is structurally meant to be all the conditions that teacher uses to promote the learnings of students (Damiano, 2013, p. 25). From this perspective, the teacher's mediation function works not only at the communicative and relational level (Feuerstein, 1999) but also as ‘integration’ (Cochran, 1993) of subject matter. In other words, teacher (T) would trigger the mediation process providing *students* (St) with a system of *devices* (Md) that favour them to interact with *cultural objects* (Co) (fig. 1).

![Figure 1: School mediation process - Damiano, 2013](image)

I.e., a school mediation process: the *teacher* (T) teaches integrals, a content of the syllabus of Mathematics (Co), in a High School V class (St) through a lesson based on a textbook or an interactive whiteboard lesson (Md).

The whole process (Teacher/Student/Mediators devices/Cultural objects) is characterized by mutual relations (Fig. 1, Damiano, 2013, p. 76): each item would affect the others and would be in turn influenced in an always open dynamic system. The double directional arrows, in fact, mean not only that teacher, as much as student, modify mediator devices by the use but also that teacher and student themselves are modified by the use of mediator devices.

This is a very sophisticated process that happens every day in every classroom. The process becomes more complex in the case of ‘mediatisation’ (Rézoul, 2002), the technological mediation, because of technological devices modify more incisively teachers’ and students’ actions and turns the traditional triangular relation (Hussaye, 1986 – teacher/student/cultural object) in a ‘square’ (teacher/student/mediator devices/cultural object).

2. THEORETICAL FRAMEWORK

The study aims to deepen the teaching-learning mediation process carried by secondary-school philosophy teachers focusing on the ‘second triangle’ dynamics (Fig. 1 – b): teacher (T), mediation devices (Md), cultural objects (Oc). It is inspired by the theoretical model of PCK - pedagogical content knowledge (Shulman, 1986) – and the concept of ‘integration’ (Chocran 1997).
More than ever, the well-known PCK model of Shulman is useful as a reading/analysis tool of the mediation process because it clarifies the concept of 'content knowledge' - 'the amount and organization of knowledge itself in the mind of the teacher' (p. 7) - and, in it, distinguishes between:

1) **Subject matter content knowledge**: different structures – substantial and syntactic - of content knowledge which/that refers to concepts and specific domains (as Schwab’s ‘discipline’ - 1978);

2) **Pedagogical content knowledge**: subject matter content knowledge for teaching. (As Shulman (1986), it refers to teachability but not to other elements as classroom organization and management, even though ‘terribly important’ (p. 14)). It refers to ‘the most regularly taught topics in one’s subject area, the most useful forms of representation of those ideas, the most powerful analogies, illustrations, examples, explanations (...) the way of representing and formulating the subject that make it comprehensible to others’ (p. 9); it also includes understandings:
   - 1. of what makes the learning the specific topics easy or difficult,
   - 2. of what is the perception (and misconceptions) of students about the topics ecc.

3) **Curricular knowledge**: ‘the full range of programs designed for the teaching of particular subject and topics at a given level, the variety of instructional materials available in relation of those programs’ (p. 10) – as, in other words, ‘materia’.

From another point of view (Chocran, 1997), PCK has been defined as a ‘type of knowledge that is unique to teachers, and is based on the manner in which teachers relate their pedagogical knowledge (what they know about teaching) to their subject matter knowledge (what they know about what they teach)’ (Chocran, 1997, p. 13). Therefore, PCK can be considered as the ‘integration’ or the synthesis of teachers’ pedagogical knowledge and their subject matter knowledge that comprises pedagogical content knowledge.

Shulman’s PCK slightly differs from Chocran’s one, well considering: Shulman focuses on the teachers’ personal ‘representational’ procedures of a subject matter, from a pedagogical point of view; Chocran focuses on the synthesis that teachers make between personal ‘representational’ pedagogical procedures and their subject matter knowledge, but also from an epistemic point of view.

The study uses this specific meaning of PCK.

3. METHODOLOGY.

The explorative study (Stake, 1995) focuses on the manner in which teachers relates their pedagogical knowledge to their subject matter knowledge and
considers the teacher’ way of representing and formulating subject matter in order to explain it to the students.

The multiple case-study design (Yin, 2003; Henke, 2009) proceeded through an in-depth analysis of mediation devices carried out by two high school philosophy teachers (Teacher A, Teacher B) on the same content knowledge (CK), the Italian philosopher G.B. Vico (v. fig. 2).

Two kinds of mediation devices have been examined: interactive whiteboard lessons (Md1) and every tools used by teachers to make clear the lesson and to integrate the schoolbooks information (Md2) – as personal notes and schemes, digital tools etc. shared with students on school e-learning environment.

The data collection was carried out with specific tools according to typology of mediation devices examined: participant observation, during the lesson; in-depth interview, after lesson (Md1); documentation of mediation tools (Md2).

The data analysis was performed through the triangulation (Denzin, 2006) of verbal/non verbal, semiotic and textual elements.

**Figure 2: The exploratory case study design**

4. RESULTS.

In accordance with the 'collaborative' method (Day & Townsend, 2009; Perla, 2015) and in order to support the co-construction of practical knowledge (Duff, 2002), first results of the analysis have been discussed between teachers, involved in the research, and researches after sharing the research procedures and same semiotic and meta-representation categories (Simmons, 2011; Waldrip & Prain, 2013; Damiano, 2013).

First findings are highlighting aspects dealing with the personal strategies that teacher uses in order to explaining the subject of lesson and integrating the school-books information. In this paper it is useful focusing on the specific
visual resources by which teacher promotes students’ learnings, without considering the dynamic of communicative interaction (use of words, gestures aimed at the involvement of students etc.). The data analysis – collected by participant observations, in-depth interviews and documentation – showed that teachers tend to avoid the representational tools (cognitive maps, figures, tables etc.) available on the schoolbooks. See the table 1 used in the synthesis of triangular analysis.

<table>
<thead>
<tr>
<th>Teacher A</th>
<th>Teacher B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Md1: Lesson</td>
<td>Md1: Lesson</td>
</tr>
<tr>
<td>Observation</td>
<td>In-deep interview</td>
</tr>
<tr>
<td>teacher draws personal schemes (maps), on whiteboard</td>
<td>Motivation: they are more effective</td>
</tr>
<tr>
<td>Criterion: completeness</td>
<td></td>
</tr>
<tr>
<td>Consequence: common reference</td>
<td></td>
</tr>
</tbody>
</table>

Table: 1: Synthesis of triangular analysis

They consider the schoolbooks’ resources improper to explain the subject matter and unsuitable to support the students learning. About the motivation, i.e., Teacher A says:

I’ve always used my schemes at lesson. I think they're more effective than the maps that I find on the schoolbooks (...) they help me to better explain what I mean.

Teachers prefer to use personal schemes and develop them preferring completeness rather than simplification. About the criterion of schemes’ composition, Teacher B says:

My notes don’t need to simplify the concepts and the contents of the schoolbooks, but to connect them in a more useful way to students' learning. I find sometimes the schoolbooks’ synthesis very basic, my notes instead are more comprehensive.
Teachers also use these personal schemes in different ways: hand-made on block notes, drawn on black board and whiteboard, digitized and shared through the school e-learning environment. In this way teachers are able to share with students and spread in the school context an original and common structure of subject matter. About this, Teacher B says:

Students know that (schemes) are made by me so they pay more attention and use them for studying. Also they find the same pattern in shared on-line materials and they can share a single common reference.

This original and common structure of subject matter, made by teacher, works at the same time as a landmark that unifies different subject matter representations (i.e. text book, free resources online etc.) and also as a scaffold in the students learning process.

5. IMPLICATIONS/DISCUSSION.

These findings will be used in a further studies as significant indications to the unit of analysis’ operational definition (Stake, 1995). The incoming studies will be conducted at different levels: a) with same teachers but on other philosophical subject matter; b) in other high school on the same subject matter. This will detect if first findings highlighted here – features of personal schemes, different ways of use - are connected to specific subject matter, personal strategies of teachers or characteristics of learning environment.

At the time, it is possible to confirm, as Hennessy (2011), the central role of teacher’s artefact in the support of students learning process. This applies not only to Mathematics but also Philosophy matter.

Personal teacher’s artefacts, as iconic mediation tools (i.e. schemes, tables, mind maps, examples images), analyzed in this study, works not only as cognitive structures that support the students learning processes but also as landmarks that unify in a original, common and available representation the different forms of understandings about a specific subject matter.

Considering, first of all, that teacher’s mediation function works not only at the communicative and relational level but also as ‘integration’ of subject matter (Chocran, 1997) and, secondly, that subject matter mediated by teachers would structure a specific identity – as shown in this study - it would be useful to further how teachers develop personal mediation tools in order to understand the teachers’ meta-representation competence (di Sessa & Sherin, 2000), in other words, ‘the ability to generate new knowledge (Eilam, Gilbert, 2015).

6. CONCLUSIONS

This lead to think that the study of teachers’ mediation devices and the analysis of representational tools used in the teaching-learning process allow to
understand PCK, from a specific point of view. It would be one of the useful way to find out how teachers relate their pedagogical knowledge to their subject matter knowledge – as Chocran’s ‘integration’ suggests. Although from the theoretical point of view the relation between pedagogical and subject matter knowledge is well-known, nevertheless on the practical and procedural levels even today it needs to be explained.

REFERENCES


Investigating EFL Elementary Student Teachers’ Development in a Professional Learning Practicum

Chiou-hui Chou

National Tsing Hua University
chou@mx.nthu.edu.tw

ABSTRACT
The preparation of teachers through practicum is a central component of teacher education programs all around the world. Over the years, teacher educators have argued for a rethinking of the connections between campus courses and field experiences, on the grounds that more closely connecting these social spaces might enhance the learning of student teachers and better prepare them to be successful in the classrooms. How can teacher educators bridge the different learning sites and enhance prospective teachers’ learning? The researcher, implementing the concept of professional learning community, investigated EFL elementary student teachers’ development in their practicum in Taiwan. A qualitative case study approach was applied. Data were collected from discussions during each meeting, the student teachers’ reflective journal writing, semi-structured interviews, and the researcher’s classroom observations. The study found a carefully structured teaching practicum helped student teachers to analyze teaching practices critically and reflectively. It is suggested that university programs, teacher educators, and elementary schools can work together to make the teaching practicum a professional development opportunity for both student teachers and mentoring teachers.

KEYWORDS: EFL, practicum, professional learning community

1. INTRODUCTION
Preparing teachers through practicum is a central component of teacher education programs all around the world. Over the years, the practicum experience as an important component in the process of learning to teach has never been challenged. According to Zeichner (2010), the practicum plays a significant role in initial teacher education programs, providing authentic opportunities for teacher candidates to gain understandings of the professional practice of teaching in today’s diverse classrooms. It should be regarded as an ongoing process of teacher development. In a recent review of practice-based teacher preparation, Mattson, Eilertsen, and Rorrison (2011) report evidence demonstrating how practicum experiences are used to support prospective teachers’ professional knowledge, skills and dispositions. Ibrahim (2013) states that practicum experiences can lead to student teachers’ personal and professional development and ease their induction to the profession.
Moreover, Rozelle and Wilson (2012) find that new teachers in the US often cite student teaching or field experience as the most beneficial, authentic, or practical aspect of teacher education. To sum up, empirical studies have shown that student teachers view their practicum experiences as extremely important and essential for their induction into professional life. Although the practicum is considered important in the process of teaching and learning, a number of criticisms are attached to it. For example, Qazi, Rawat and Thomas (2012) point out that primary teacher certification programs neither provide the general education necessary to foster effective communication skills, critical thinking and creative instructional leadership nor promote in-depth content knowledge. In addition, much of the criticism is on the method the practicum operates. Just as Zeichner (2010) indicates, for many years the obstacles to student teacher learning are associated with the loosely planned model of field experiences. Indeed, educators all around the world have advocated that teacher education programs must be improved if they are to prepare competent teachers to meet the challenges of the 21st century (Darling-Hammond, 2010; Hökkä & Eteläpelto, 2014; Hollins, 2011; Korthagen, 2010).

Based on sociocultural theories, researchers suggest that student teachers should be members of communities where they actively, critically, and collaboratively examine their teaching practices (Putnam & Borko, 2000). From this perspective, educative supervision might be an effective supervision approach to educate reflective teachers, who strive to grow continuously and do not view student teaching as an end point to their professional development. Hollins (2011) indicates that the benefits of participating in a professional community are enhanced by a strong professional identity and the ability to engage in self-directed professional growth and development and to work collaboratively with colleagues to improve learning outcomes for students.

This paper was guided by the leading education researchers’ advice of improving teacher education and improving the role of the practicum within teacher education. It is believed that the teacher education should help prospective teachers acquire the knowledge, skills, and dispositions that will allow them to teach successfully. Thus, to understand how teacher educators can better support elementary student teachers’ learning during their practicum, this researcher investigated the impacts of a professional learning community on EFL (English as a Foreign Language) student teachers’ professional knowledge development in Taiwan.
INVESTIGATING EFL ELEMENTARY STUDENT TEACHERS’ DEVELOPMENT IN A PROFESSIONAL LEARNING PRACTICUM

2. THEORETICAL FRAMEWORK

Avalos (2011) points out that the professional development of teachers is presented in the literature in many different ways; the core of such endeavors is the understanding that “professional development is about teachers learning, learning how to learn, and transforming their knowledge into practice for the benefit of their students’ growth” (p. 10). Hiebert and Morris (2012) and others have argued that working directly to improve teaching as part of a professional community provides the most authentic and rewarding intellectual challenge that can keep teachers engaged in the profession (Lampert & Graziani, 2009; Lewis, Perry, Friedkin, & Roth, 2012).

In particular, research suggests that professional development targeting a specific practice is more effective than general professional development as teachers need substantial opportunities to learn a particular practice (Cohen & Hill, 2001; Stanulis, Little, & Wibbens, 2012). Moreover, many researchers perceive that in order to be properly prepared, teacher candidates need considerable experience with whole-class and solo teaching since they will ultimately be alone in their future classrooms. Just as Ball and Forzani (2010) argue, time in the field alone is not sufficient for teacher learning; rather, disciplined inquiry about practice can support that learning. This is echoed by Johnson (2010), who suggests that it is carefully supervised apprenticeship experiences in which students and mentors engage in reflective dialogue that can make the difference. It is not necessarily the number of hours of coursework or field experiences. Similarly, Stanulis, Little and Wibbens (2012) also advocate that mentoring programs need to “provide professional development that targets a clear, high-leverage practice linked with instructional quality” (p. 33). Targeted professional development happens when teachers receive substantive preparation over time with a focus on deep and challenging content, facilitated by university representatives who have studied this same targeted content (Bausmith & Barry, 2011). Therefore, it is on the above premises that this paper emphasizes that student teachers need an opportunity to practice and examine their teaching practice in the practicum, not just immersed in a classroom with a mentoring teacher.

3. METHODOLOGY

A qualitative case study was applied in this study (Merriam, 1998). Five female student teachers, fulfilling their practicum in an elementary school near the researcher’s university, was invited to participate in this study. According to the university and the elementary school’s collaboration contract, each student teacher was assigned to a classroom with a homeroom teacher, serving as the
In this study, the researcher invited two English teachers from the student teachers’ practicum school to serve as the English-subject mentors. In September, the professional learning community was formed, where student teachers, mentors, and the researcher met twice a week. The mentors and the researcher examined how to help the EFL student teachers develop specific knowledge, skills and dispositions by examining their own practice. During October, November, and December, the student teachers were arranged to teach a grade 2, a grade 3, and a grade 4 class individually. The lesson plans and teaching ideas were discussed before they went to teach a grade level. While one student teacher was teaching, the others and the university supervisor as well as the mentors were observing the lesson. After each teaching demonstration, the members had a post-lesson conference, feedbacks were shared and modifications were made for the next lesson.

At the end of the semester, the researcher interviewed each student teacher and the mentoring teachers, regarding their perspectives of participating in this learning community. Data also included the researcher’s classroom observation, her conversations with each student teacher after each observation and meeting, the student teacher’s reflective journal writing after each teaching, and their observation notes.

Analysis of the data included reading and rereading interview transcripts, field notes, videos, and all the documents (Creswell & Plano-Clark, 2007). A constant comparative analysis (Miles & Huberman, 1994) method was applied to generate categories and themes, which were then used as evidence to document the concerns, challenges, and supports that the student teachers expressed during their practicum regarding planning lessons, teaching lessons, student learning, and professional growth.

As Merriam (1998) suggests, strategies for establishing internal validity, which include triangulation, member checks, and long-term observations. In this study, different sources of data were collected to achieve triangulation. Also, a broad and in-depth literature review in the topic can achieve expert knowledge to support the validity of the interpretation of the result. In addition, data triangulation can help enhance reliability (Merrian, 1998). Thus the use of multiple sources of data as described above contributes to the trustworthiness of the data and to the methodological rigor of this study.

4. RESULTS AND DISCUSSION

In this professional learning community, everyone learned with one another. First, student teachers knew how to look to the university professor and the classroom instructors as sources of the information that they need to be effective teachers. Practicing teaching in the school context led these student teachers to focus on adapting to the classroom context. Thus, looking to
mentors as experts to resolve classroom dilemmas was common in this study. In post-lesson discussions, student teachers generally proposed questions in related to classroom management disciplines. In the meanwhile, during observation, the mentors usually gave feedbacks on managing classroom disciplines. Thus, student teachers expressed they learned a lot from the mentors regarding classroom management strategies.

Second, as Langdon (2014) indicates, numerous studies have addressed the critical role that mentoring plays in the professional development of prospective teachers and many of the investigations are about how mentoring matters to the mentee. For example, effective mentoring is a critical component of early career development and the development of quality teachers (Feiman-Nemser 2001). Less has been revealed about what classroom teachers learn about mentoring when undertaking this role and little is understood about how the mentor-mentee relationship contributes to the mentors’ growth and development. In this present study, mentors acknowledged that they learned from the student teachers about how to design different activities for different group of students. During one observation a grade four classroom, one mentor, Sue, found a boy paid great attention to a student teacher’s instruction and actively participated in that day’s language activities—which she had never in her class found this learning attitude. This made her reflect on her own teaching styles and strategies. The theory of multiple intelligences (Gardner, 1993) thus popped up in her mind. She thought about using different types of activities to engage students with different learning styles in learning.

Third, from the university supervisor’s perspectives, the teaching practicum is the final stage that teacher educators can see how prospective teachers are prepared and teacher education programs should take on the responsibility of helping student teachers develop the professional, affective, and collaborative dispositions. Thus, in this study, the researcher’s main focus was on how to facilitate the development of student teachers’ competencies in constructing professional practice in real classrooms. Questions and reflection guidelines regarding practicing TESOL principles from the researcher usually presented mentors and student teachers with an on-going challenge. From a sociocultural perspective, knowledge about teaching is socially constructed. This view of knowledge suggests student teachers should be involved in a discourse community to analyze teaching practices critically and reflectively (Putnam & Borko, 2000). It was this type of supervision that motivated student teachers to link theory with practice.

Soslau (2015) indicates that teachers are expected to transform what they experienced in a professional learning community so that they are able to pose
problems, identify discrepancies between theories and practices, and challenge common routines. Similarly, the discussion sessions in this practicum project provided a context for helping student teachers learn how to engage in these types of activities towards the goal of transforming their participation and becoming contributors to professional learning communities. All the members in this learning community acknowledged their personal benefits of the participation in this research study.

5. CONCLUSION
It was in this study that the researcher witnessed how everyone learned with one another. Including elementary teachers and student teachers in a learning community gave both parties opportunities to express their teaching ideas, share their knowledge, and discuss the effectiveness of an activity. In this learning community everyone developed professionally. The university supervisor learned how to guide the preserve teachers to teach different graders. She found the strategies to guide preservice teachers to teach lower graders should be different from the strategies teaching higher graders. The mentors learned from these student teachers about how to implement innovative English theories of instruction. The student teachers learned about classroom management strategies from the mentors and they knew that each mentor actually developed their own teaching style. This study found good mentor-mentor relationship could not only contribute to the student teachers’ growth, but also the mentor’s development. The mutual benefits thus contributed to the development of more quality teachers.

After completing this study, the researcher found still there is much to be done. It is increasingly clear that investigation in mentoring is of value and that mentoring within a community is most meaningful when different perspectives are shared and discussed. Although this type of mentoring has become widely recognized by researchers and educators, policy makers can also adopt the idea. Learning in a community with multidimensional perspectives proves that teacher learning is a collaborative, complex, and systemic enterprise.

Research has clearly shown that practicum schools are important occasions for teacher learning (Zeichner, 2010). Research into the topic of practicum can help improve teacher education for preparing competent teachers. In this study, investigating the five elementary prospective English teachers’ knowledge development contributes to the understanding of how a strategic professional development program can be implemented in teacher education.
6. IMPLICATIONS

The results of this study have implications for teacher education programs. It offers suggestions and gives an example of how an effective professional practicum can be operated. University programs, teacher educators, and elementary schools should work together to make the teaching practicum a professional development opportunity for both the student teacher and the mentoring teacher. Collaborative problem solving, planning, and peer observations should be a regular part of a teacher’s professional growth across the span of his/her career, which is strongly emphasized in quality of teaching in the twenty-first century.

More than a decade ago, Clarke (2001) has noted that mentors in the school context play a major role in the preparation of teachers. At that time, he also pointed out how mentors were prepared for the work was an untapped research area. Recently, research has drawn conclusions about the efficacy of training mentors for their role (Darling-Hammond, 2010; Sykes, Bird, & Kennedy, 2011; Zeichner, 2010). This study also suggests that training teachers for playing the role as mentors is imperative. Establishing a model of mentoring may, indeed, be strengthened by university educators’ further research projects—such as beginning a project with their partnership elementary schools.

REFERENCES


Utility of the professional diary to perfect teaching practice

Paula Martín Gómez\(^1\), and Mª Luisa García Rodríguez\(^2\)

\(^1\)University of Salamanca
pauluap.mg@gmail.com
\(^2\)University of Salamanca
malugaro@usal.es

ABSTRACT
This investigation presents a case study regarding the utility of the professional diary for systematic self-study and professional development. It takes into account the comparison between the diary written by a student in her last year of initial formation as a Diploma in Early Childhood Education and her current diary as a teacher. She held a one-month stay in a Public School in Salamanca (Spain) as part of the subject Practicum. Nowadays, she works in a public school in the Community of Madrid as a teacher of Primary Education and English. From her current diary, the text written during several months of the current course is taken as a sample. The inquiry is carried out according to the guidelines of the qualitative methodology. An indexing tree is made categorizing and encoding the information collected in both diaries. It is used as an instrument of data analysis and the text paragraph is adopted as a textual unit. Results provide accurate information on the professional skills that are being put into play and the degree of dedication to the different tasks of the world of education. The relevant conclusion is that research competence, together with the tasks of experimenting and innovating, show low percentages in both journals. But, certainly, the elaboration of a professional diary, understood as a strategy that invites critical reflection on one’s own practice, when conveniently focused, stands as a proposal to address this important function entrusted to teachers in recent decades.

KEYWORDS: professional diary, teaching practice, research competence, continuous professional development.

1. INTRODUCTION
The investigation tries to trace the utility of the professional diary to perfect the practice through a case study. Diaries written by a teacher are analyzed, both her initial academic training and in her current educational practice. As a consequence of the above mentioned analysis, it is suggested that future professionals learn to do the diary and to acquire the habit of writing it. This one might be one of the functions of the professorship in charge of the subject Practicum at University, so as Schön indicated (1992): “We should study the experience of learning by doing and the art of a good tutorial action” (p. 28).
2. THEORETICAL FRAMEWORK

The consolidation of the professional knowledge by means of the practice rests on the intervention on concrete teaching-learning situations that take place in a certain and specific context. The above mentioned intervention will offer information for the analysis and the reflection. This information will be taken as a base to stimulate the educational innovation, which needs to be constantly incorporated in the institutions.

Diary-writing favours a research attitude that takes into account theoretical and practical perspectives from observation. It is framed in the reflexive current that defends the alternation between action and transforming reflection (Dewey, 1933). A dialogue between thought and action entails the improvement of skills, as Schön defended (1983). Brookfield (2005) considered that reflective practice is widely recognized as central to teaching.

The professional journal is conceptualized as a tool (Porlán, 1987, Porlán and Martín, 1996, and Medina, 2001) or an instrument (Torres, 1986, Aranda et al., 2006, Acuña 2015) that favors the reflective and investigative attitude and implies a permanent professional development.

With respect to its usefulness, it represents a guide that promotes awareness about the self-evolution process and the reference models (Porlán and Martín, 1999), it allows contrast, reconstruction and distancing (Medina, 2001), it is explicit in Aranda et al., 2006 and it makes it explicit sometimes in an unconscious way, complex problems or situations that require decision making to be addressed. It is also useful to capture the essential and to improve various techniques (Aranda et al., 2006).

However, its implementation entails certain difficulties, such as subjectivity (Porlán and Martín, 1999) or the requirements of continuity and time of dedication (Acuña, 2015).

As regards to its content, Porlán (1987) mentions "styles", advising that it is possible to focus, for example, on the emotions, the instruction, or the social dynamics and personal attitudes of the class.

Finally, it is also possible to distinguish certain stages of research in the diary process, from the simplest to the most complex: unreflective description, analysis (of causes and consequences) and delimitation of problems followed by its resolution (Porlán and Martín 1999).

3. METHODOLOGY.

The research design starts from a research question that will be taken as reference for the study, as well as for the formulation of the general objective and the specific objectives reflecting the methodology used.

The research question is: Does the teaching diary enable an improvement in the continuous teachers’ training and in their professional practice? This question leads to the following objectives:
Utility of the professional diary to perfect teaching practice

General objective:
- To value the usefulness of the professional diary as a strategy for lifelong learning.

Specific objectives:
- Identify the topics on which information is collected in the diary.
- Compare the contents of both the initial training diary and the current professional diary.

The investigation starts from the analysis of the initial training diary, which was a task carried out within the framework of the subject Practicum during the author’s stay in a school in the city of Salamanca. It was written from 10th January to 11th February, 2011. The professional diary to be consider covers from 1st September, 2016 to 31st March, 2017. It is about analyzing and comparing the content of both diaries.

The interactive model of the qualitative data analysis (M.I.C.) proposed by Miles and Huberman (1994: 12) is the paradigm used to analyze the two diaries. The phases of which it consists are: (1) Data collection. The data were collected daily. (2) Analysis of the data. Analyzing the data, according to the qualitative methodology, requires reducing them to categories or classes. To index the initial training journal, the article by De Castro, García and Lahora (2009) was taken as reference. (3) Presentation or visualization. The data deployment is done by categorizing them according to an indexing tree that acts as an analysis tool. It is obtained from the categories of the initial training diary and the current diary. The frequencies counted in each of the categories are extracted from the textual units (t.u.) in both diaries. The text paragraph is taken as the textual unit. (4) Drawing conclusions.

The indexing tree is as follows:

![Indexing tree](image)

Figure 1: Indexing tree. Source: own elaboration.
A description of the categories is presented below.
Professional tasks: Like all professionals, teachers must carry out a series of tasks that are specified in the following subsections.
1. **Educate**: To direct, to guide, to doctrine. To develop or perfect the intellectual and moral faculties of the child or young person by means of precepts, exercises, examples, etc.
2. **Teach**: To instruct, to teach with rules or precepts. Give warning, example or lesson that serves as experience and guide to act from now on. Make someone learn something. This section includes the regulation of the elements that determine the teaching and learning processes in each of the teachings. It includes objectives, competences, contents, methodology, learning standards and evaluation criteria.
3. **Regulate behavior**: To determine the rules and norms to which children must conform and to arrange the operation of a system so that they behave correctly.
4. **Attend families**: Teachers should know the family circumstances and the environment in which their students live.
   4.1. **Relationship management**: It is fundamental to strive to generate and maintain a fluid and fruitful relationship that favors the involvement and participation of all agents in the educational process.
   4.1.1. **School diary**: Small notebook in which annotations are written regarding the school activity.
   4.1.2. **Tutorials**: Meetings to address specific and individual issues.
   4.1.3. **Daily Contact**: Every day when leaving or picking up their children, in case they need immediate attention and cannot wait to have a tutorial.
   4.1.4. **Meetings**: All families are invited in order to communicate them common information.
4.2 **Collaboration with families**: In order to respect the fundamental responsibility of the mothers, fathers or guardians at this stage, the Child Education Centers will cooperate closely with them, requesting their participation in various activities, accompanying excursions, performing costumes, etc.
4.3 **Detection of unfavorable family situations**: Certain behaviors, reactions and even comments can be indicators of complex situations like abandonment, lack of hygiene or even alcoholism in the family, ill-treatment, abuse, etc. It is essential to detect these alarm signs to inform the competent institutions.
5. **Investigate, experiment and innovate**: Introduce novelties in the teaching exercise to improve the quality of teaching, test and examine the conditions or properties of a thing by practice or experimentation. Try to discover or know something, studying or examining carefully any clue or doing the diligences to find out or clarify a fact.
6. **Interact in coordination with other people**: Take part with the rest of the teaching staff, the management team and families in matters related to education, work
as a team, provide help when necessary, etc. Teachers must exercise their functions following the same principle of teamwork and coordination.

6.1. Level: Teachers who work at the same educational level and work in coordination.

6.2. Teaching Team: A group of professionals who teach in the same course.

6.3. Cloister: Board consisting of the Management Team and all the faculty of an educational center.

6.4. EOEP: Educational Orientation and Psychopedagogical Team.

6.5. English Committee: A group of English-speaking specialists working in the same center.

6.6. Assessment: Meetings arranged between the teaching teams to evaluate students once a trimester.

7. Addressing bureaucratic issues: At all educational levels, members of the faculty must complete a series of administrative documents, reports, plans and statistical and informational documents.

4. RESULTS.

The results of the training journal are presented first.

<table>
<thead>
<tr>
<th>Professional tasks in the initial training diary</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Educate</td>
<td>14</td>
<td>20,8%</td>
</tr>
<tr>
<td>2. Teach</td>
<td>14</td>
<td>20,8%</td>
</tr>
<tr>
<td>3. Regulate behavior</td>
<td>16</td>
<td>23,8%</td>
</tr>
<tr>
<td>4. Attend families</td>
<td>6</td>
<td>8,9%</td>
</tr>
<tr>
<td>5. Investigate, experiment and innovate</td>
<td>2</td>
<td>2,9%</td>
</tr>
<tr>
<td>6. Interact in coordination with other people</td>
<td>14</td>
<td>20,8%</td>
</tr>
<tr>
<td>7. Addressing bureaucratic issues</td>
<td>1</td>
<td>1,4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>67</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 1: Professional tasks in the initial training diary. Source: own elaboration.

Table 1 shows a broad predominance of the category "regular behaviors", with 23.8% and 16 textual units, followed closely by "educating", "teaching" and "intervening in coordination with other people", all with a 20, 8% and 14 textual units. On the contrary, the categories with the lowest representation are "bureaucratic issues" and "coordinate with other people", with 1.4% and 2.9% respectively.

The results of the actual journal can be found below.

<table>
<thead>
<tr>
<th>Professional tasks in the actual diary</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Educate</td>
<td>13</td>
<td>5,67%</td>
</tr>
<tr>
<td>2. Teach</td>
<td>44</td>
<td>19,21%</td>
</tr>
<tr>
<td>3. Regulate behavior</td>
<td>27</td>
<td>11,79%</td>
</tr>
</tbody>
</table>
Table 2: Professional tasks in the actual diary. Source: own elaboration.

Table 2 shows that the categories with the greatest representation are clearly "Attending families", with 29.69% and 68 textual units, and "Intervening in coordination with other people", with 25.32% and 58 textual units, followed by "Teach", with 19.21% and 44 textual units. The category with less relevance is "Investigate, experiment and innovate", with 3.49% and 8 textual units.

5. IMPLICATIONS/DISCUSSION.
The results obtained indicate that the content of the professional diary contains a large amount of information that can provide relevant and significant data, not only because it is registered and categorized, but also because it is the object of further reflection that will contribute to professional development.
There is, however, a noticeable difference between the initial training diary and the current one. In the first one, the one who studies Education absorbs all the information that the context, the students and the professionals who fulfill the function of tutor provide; It is a first contact with the profession. This is why aspects that emphasize direct contact with students predominate, for example: regulating behavior, educating and teaching; While bureaucratic issues and coordination with other professionals are relegated to the background.
On the contrary, in the current diary, the teacher takes full possession of the charge and its consequent responsibility, having to perform all the tasks that it entails. Thus, “attend families”, “interact in coordination with other people” and “teach” appear as the main focus of current activity. This educational framework leaves little room for innovation and experimentation, due to the development of the above mentioned aspects and the need to carry out all the bureaucratic tasks that the Educational Administration demands, occupying much of the dedication.

6. CONCLUSIONS
The degree of achievement of objectives, both specific and general, is assessed and the research question will be answered.
As for identifying the topics on which information is collected in the diary, attention is drawn to the appearance of a large variety of carefully organized information that is collected in the current diary for later analysis.
All these areas (Primary and Secondary Education, Primary School, the educative figure, students from 3 to 12 years, Educational Administration or complementary activities) are taken into account by teachers in their eagerness to carry out their work in a professional and optimal way.

In relation to comparing the contents of the initial training diary and the current one, as mentioned in the discussion, the relevance of certain categories has changed in parallel with the change of role that has occurred in the person who writes the diary, when passing from student to teacher. In the training diary, categories such as regular behavior, educate and teach prevailed, while the categories with the greatest representation in the current diary were attending to families, intervening in coordination with other people and teaching.

It has been possible to evaluate the utility of the professional teaching diary as a strategy for ongoing formation, the general objective of this inquiry. The case of study is an example of how data recording and its subsequent analysis allows to show which competencies are being most frequently served; "Attending families", "Intervening in coordination with other people" and "Teaching"; And which have a lower incidence, as is the case of "investigate, experiment and innovate" whose percentages yield data lower than 4% in both newspapers.

We conclude this research answering the research question: *Does the teaching diary enable an improvement in the continuous teachers’ training and in their professional practice?* According to the results obtained, a professional diary focused on self-evaluation has provided the relevant conclusion that it is necessary to search for strategies for research, innovation and experimentation. It is pointed out the shortage of time, induced by the demands of accomplishing multiple tasks, as the main difficulty in dealing with research competence. But precisely through the realization of the diary, as a facilitator of reflection on one's own practice and systematic self-study, it is possible to respond to the need for self-improvement. The reflection-action-reflection sequence will be projected in the ascending quality of the teaching practice itself. Finally, learning during initial training to use this tool has greatly contributed to continuous training. It has made it possible to train in explaining the day-to-day school difficulties and to critically reflect on them in order to find and apply future solutions.

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UTILITY OF THE PROFESSIONAL DIARY TO PERFECT TEACHING PRACTICE  327


Confronting the problem of embodiment in education

Luiz Sanches Neto¹, and Alan Ovens²

¹Universidade Federal do Ceará — Instituto de Educação Física e Esportes
Fortaleza — Brazil
luizitosanches@yahoo.com

²School of Curriculum and Pedagogy — The University of Auckland
Auckland — New Zealand
a.ovens@auckland.ac.nz

ABSTRACT
In this chapter we argue that embodiment needs to be a significant philosophy in contemporary teaching and learning. An embodied pedagogy encourages teachers to actively seek and provide meaningful, sensual and profound learning experiences that shape the embodied learner in an ethical way. An embodied pedagogy does not simply teach, tell, or instruct the learner about the world as an external place. Rather, it recognises students’ bodies as a medium for making sense and making connections with a world in which they co-participate in creating. Using a narrative approach, we worked in a collaborative way with a teacher to interpret his assumptions and thinking about the teaching of capoeira. The analysis reveals that if bodies and the movement of those bodies are seen to be central to the work of educators, then embodiment should form the basis from which any future pedagogy in schooling should develop.

KEYWORDS: physical education, ethics, Spinoza, complexity thinking.

1. INTRODUCTION
Contemporary pedagogical thinking has been anchored predominantly in essentialist biological presuppositions, which have their origins in the mind-body dualism introduced by Plato and extended by the 17th Century philosopher Rene Descartes (Ovens & Powell, 2011). In particular, dualism detaches the mind from the body, viewing the latter as a biological and physical object that is separated from and subservient to the mind. One legacy of dualism for education is the view that learning is something only associated with the mind. In other words, learning is something mind does and is framed as a change in mental state, from one of ignorance to one of knowledge (Beckett & Morris, 2001). The corollary to this is the body, when it does come into the gaze of education, is viewed as an object to be disciplined, controlled, and normalised, particularly in relation to the development of healthy, productive and compliant bodies (Ovens & Powell, 2011).
In this chapter, we argue that the body can be framed in a different way – in relation to teaching – and meaningful – to students’ learning. In this sense, we investigate the nature of an “embodied pedagogy”, shaped by three questions:

- How can this pedagogy improve (inter)personal aspects in the students’ relationships to themselves and with others?
- How does this pedagogy contribute to broadening the students’ interest in social justice?
- How does this pedagogy make it possible to create contexts and situations that are meaningful for students’ learning?

2. THEORETICAL FRAMEWORK

Spinoza, according to Deleuze (1970), is one of the most important and radical philosophers of the early modern period. Amongst his contributions, Spinoza’s thought challenged Descartes’ notion that the body and mind are two separate entities, arguing instead that both were one continuous substance. For Spinoza, the mind was not a rational machine, but that thoughts were deeply entwined with feelings and emotions. Coupled with this, desire was central to Spinoza’s (2016) theory of affections, in the sense that desire distinguishes between passion and action. For Spinoza (2016), there is passion when the desire comes from outside the field of interest of each human being. When desire emanates from inwardness there is action upon the world and every human being takes “destiny” into her/his own hands.

Spinoza (2016) was concerned not to judge human actions in favour of a supposed rationality. He was attentive to the understanding of these actions through human affections. Portuguese has a word for this specific meaning of desire: *saudade* or the longing for what is missing or for what has not yet happened. The word *saudade* does not have a corresponding translation in any other language (CHAUÍ, 2011). The singularity of each desire is variable, has no content in itself and will weave the uniqueness of our life. The actions that have in us their point of origin are power (potency); the desires that come from externality are passions, that is, impotence. Thus, Spinoza’s ethics (2016) is based on intellectual contentment and political freedom. In a way, it is also spiritual, since it presupposes that the human being is the singular expression of an immanent power.

2.1. Embodiment: relationships based on affections of the body

Federici et al. (2014) explain that affection is the state of one body as it undergoes the action of another body. When analysing the definitions, axioms, propositions, postulates and mottos by Spinoza, Federici et al. (2014) point out the problem of regeneration, since the human body needs many other bodies to regenerate itself continuously through interactions. Spinoza’s ethics are
purposeful and the concomitance of the affections is a challenge to the understanding of interpersonal relations.

Whenever the body constituents are renewed, identity is maintained because it is the same individuality. The body is dynamic, complex and essentially relational, constituted by internal and external relations with other bodies. These (inter)personal relationships are what Spinoza (2016) calls bodily affections. Therefore, (inter)embodiment originates because these relationships between (inter)personal aspects will produce the life of a body. For Spinoza (2016), affection is the ability to affect other bodies and to be affected by them without destroying, but regenerating.

Chauí (2011) explains that the potency of our corporeal life refers to the idea of how much more we are able to be affected by other bodies, of a huge plurality of ways, more powerful and stronger we are. Our weakness is always isolation, so our way of being is relational, it is being with others. Then, schooling can both constrain and empower us. The more the body is capable of simultaneity of affections – both those it receives from other bodies and those that it causes in them – the more potent it is.

That is why, for Spinoza (2016), we are originally affective beings. The affections from bodily events (and the ideas of these affections) are modified by the very life of the body and become meaningful experiences. Ethics in this sense consists in fostering affections that correspond to our vital interest in concomitantly feeling, acting (movement) and thinking. Ethics is materialistic because it is based on our experiences as a body in the world. These bodily experiences (and the ideas of these experiences) are our affections.

2.2. The complexity of the materialistic ethics in physical education

The materialistic ethics by Spinoza (2016) allows us to establish some relationships to the notion of “embodiment”.

Firstly, it allows to question the postulate that “the human beings are intrinsically ethical because they are endowed with reason and able to reflect on their actions” in the context of physical education. Spinoza contributed to the secularisation of ethics, as materialism was the basis for the formation of secularity of nation States.

Secondly, the contemporary scientific rationality radicalised ethics as a reflection of codes of moral conduct. The school, in turn, has been institutionalised to value rationality (scientific), but also to contemplate the expectation of integral education of men and women since their childhood, requiring intellectual education (of the mind), moral education (of the soul, even if the States were secular) and physical education (of the body, associated with polytechnic principles).
In fact, that is why we place our analysis in the context of physical education, as Spinoza can help advance the understanding that the error is a source of learning in human experience. Then, there are contradictions in the body’s role in the devaluation of human reason (*Cogito ergo sum*) because the body is erratic according to the Cartesian assertion.

We have analysed the ethical implications in physical education from four themes of the contemporary world – reported by one Brazilian teacher – in the light of Spinoza. We believe that ethics, from the perspective of Spinoza (2016), allows us an attempt to a more complex and expanded understanding as it values human emotions.

This epistemological perspective aims at a more accurate representation in the understanding of realities. The idea is to recognise complexity, to search more creative ways of interacting and intervening in each reality. This implies an open perspective to emerging possibilities, in which teachers – both individually and collectively – “search” and “research” to expand the space of the possible (Sumara & Davis, 1997). We understand that this space also implies the immanence of desire, according to Spinoza (2016).

3. METHODOLOGY

In conducting this study, we collected data in the form of a personal narrative from one teacher writing about teaching *capoeira* to an 8th grade class in a public elementary school located in the east end of the city of São Paulo, Brazil. A rich and full narrative was prompted by directing the teacher to write in detail about two lessons from his memory, records, reflections and include any digressions that he felt were important. The narrative was then discussed in a shared way with the researchers, with those external to the experience questioning his premises and assumptions in order to elicit a thorough analysis of his perspective in the most complex way possible. The analysis of the premises of his practical argument was anchored in the work of Borges and Sanches Neto (2014), considering: judicative, experiential, theoretical and contextual assumptions.

While such a description presents the formal aspects of our research approach, it somewhat overlooks the “messiness” of our actual collaborative process. Inevitably, our knowledge is incomplete and partial, and is mediated by the inconsistencies of the teacher remembering and narrating his personal experience, of disclosing details publicly, and of interpreting pedagogical narratives without a deep understanding of the context in which they are situated. In addition, missing are the voices of students who may provide counter-narratives or alternative ways of reading our narratives. Given that all inquiry, however, is messy, partial, ambiguous and tentative (Kincheloe & Berry, 2004), the analytic framework of narratives and (auto)ethnography...
provided a useful matrix through which we could make the practice of teaching available for analysis and reflection.

4. RESULTS

Four themes of the contemporary world (body, movement, environment and sexuality) emerged in the two lessons reported by the teacher, in addition to the emphasis on teaching the cultural element *capoeira*. The main strategies used in the learning situations were collective experiences, coeducation and peer activities. The teacher taught:

– anatomical, anthropological, biomechanical, biochemical and nutritional aspects (body dynamics);
– combination of movements and capacities (movement dynamics);
– economic and aesthetic demands (environment dynamics);
– sexuality (emerging theme).

All themes were associated to *capoeira*, so the teacher kept the specificity of the lessons. The teaching of the other themes was, in this sense, convergent. However, the pedagogical treatment of each dynamic has raised different issues for the problematisation of teaching and learning processes.

In the subjects of the dynamics of the body there was emergence of: body segments and joints used to strike and dodge; idiosyncrasies of Black students; implications of Black slavery in Brazil; metabolism of carbohydrates, lipids and proteins; nutritional balance, cost of food and commercialisation of sugarcane.

In the themes of the dynamics of the movement there was emergence of: stabilisation and locomotion skills; speed, endurance, agility and flexibility capabilities.

In the themes of the environment dynamics there was emergence of: consumerism; criticism on beauty standards; suitability and cost of clothing and footwear.

In the emerging issue of sexuality there was the problematisation of: intentionality during eye contact (looking); sensuality; sexual relations between enslaved men and women; feelings about one’s own body; proprioception and perception of the other’s body by touch.

In summary, a dialogic perspective was characterised (Freire, 1996), in which the teacher questioned the students constantly during the experiences that the group performed. The subjects of the dynamics of the body, movement and environment were planned in advance. However, the theme of sexuality emerged during the first lesson. Therefore, the teacher reflected on his planning and reviewed it to associate the theme of sexuality to *capoeira* in the second lesson.
5. IMPLICATIONS/DISCUSSION

We understand that the lessons analysed provide clues to answer the questions that guide the research. Thus, we consider that an “embodied pedagogy” has the sense of facing possible conflicts arising from “inconvenient truths”. For Korthagen (2017), deep reflection is an important way to establish connections between practices, theories and the subjectivity of the person who is the teacher. However, it is a challenge to make this process explicit, even though there is sufficient evidence of its effectiveness. Kortaghen (2017) explains that teachers’ insights in reflecting on their pedagogical practices – permeated by intentionalities and emotions – become “inconvenient truths”. Thus, we propose that an “embodied pedagogy” make explicit the affections – according to Spinoza (2016) – as vital events and variations of our way of life.

The modes of explication can problematise the affections, identifying them in three different ways from their primary typology:

- joy: perception of our strength to exist or to act, with strong realisation of our being;
- sadness: perception of our lack of strength;
- desire: implies acting in a (self)determined way.

According to Chauí (2011), it is from these three affections that all other human affections emerge in Spinoza’s materialistic ethics. Therefore, our other questions can also be answered from them.

Because affection is a way of living bodily, the “embodied pedagogy” can improve (inter)personal aspects as the teacher intentionally and systematically problematise them in her/his lessons. This contributes to fostering students’ need for reflection on themselves and their relationships with others.

As each student recognises her/himself, as well as her/his limitations and potentialities, (s)he also recognises how social relationships constrain or enhance her/his behaviors (Betti et al., 2007). It is in this sense that the “embodied pedagogy” contributes to broadening the students’ interest in social justice, since fair relationships increase power.

In addition, this pedagogy brings the challenge of creating differentiated contexts for learning, mobilising the affections. Joy and sadness are not emotions, but they are operations that lead us to full realisation (joy) or weakness (sadness) in our power to exist and to act. For Chauí (2011), joy and sadness refer to how we act to maintain ourselves organically.

In order for the situations to be meaningful to students’ learning, it is up to them to mobilise their appetite (bodily desire) to know more. For Spinoza (2016), perception is the awareness we have of our own appetite which, in turn, is all our bodily potency in the field of perceptions. Therefore, the students’ various sensory channels need to be mobilised in the learning situations carried out during schooling.
6. CONCLUSIONS
The learning process of teaching – throughout permanent lifelong learning – is most effective when it connects theory and practice and, especially, when it is centered on the person of the teacher, according to Korthagen (2017). The theory of affections (Spinoza, 2016) makes it possible to identify crucial elements in this connection, as well as to organically connect the educative processes in schooling.
We conclude that the challenge of embodiment in education implies in schooling to reinvent itself in contemporaneity. There are concrete possibilities for the complexity of educational processes and practices to be in place.
Explanation of affections is a possibility that refers to profound reflection and criticism. Our perspective of “embodied pedagogy” is subsidised by the pursuit of affects that increase the body’s potency to act. This search invariably favours the promotion of social justice and equity.
However, the identification and recognition of embodiment is not enough. We suggest that it is more important to recognise that there is in every human being an embodiment that needs to be valued as each student learns. Thus, in learning, the student recognises that (s)he can continue to learn by re-signifying the world. In this sense, we call to action other teachers interested in using Spinoza’s contributions in their pedagogies.

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Influence of learning attitudes and task-based interactive approach on ESL-student satisfaction and perceived learning outcomes in a research methodology course

Leah Li Echiverri¹, and Keith Lane²

Wenzhou-Kean University
lechiver@kean.edu
Wenzhou-Kean University
tlane@kean.edu

ABSTRACT
Non-native English speaking students studying in an English medium university program in China, and taking a research methodology course (RM), were surveyed regarding attitudes to learning both English and course content, attitudes about a task based interactive approach—an ESL active learning construct—and influence of these on student satisfaction and learning. Convenience and purposive sampling of 72 students, a response rate of 72%, enrolled in RM completed the survey of this descriptive-correlation study. Findings revealed that the students came to RM with a tacit English learning expectation in addition to the learning of the specified course content. They responded positively to interactive activities, similar to the type common to ESL classes, which simultaneously provided classroom interaction in English in tasks related to communication about RM. Attitudes and a task-based interactive approach had a strong and positive significant correlation to ESL student satisfaction and perceived learning.

KEYWORDS: Task-Based Interactive Approach, ESL Student Satisfaction, Content-Based Instruction

1. INTRODUCTION
Eom, Ashill and Wen (2006) studied course structure, instructor feedback, motivation, learning style, and instructor facilitation as determinants of perceived learning and learner satisfaction. While they found a positive relationship of all variables to satisfaction, only learning style and instructor feedback showed a positive significant relationship to perceived learning, though satisfaction was a significant predictor of perceived learning. In addition, in the follow-up study of course organization and structure, student engagement, learner interaction and instructor presence and their relationships to student satisfaction and perceived learning, Gray and DiLoreto (2016) found a positive relationship for each of the variables except learner interaction.
Learner interaction did not have a significant positive relationship either on perceived learning or satisfaction.
Caution should be used applying these results to the current study, however, because both studies were investigating online course delivery, whereas the current study involves a classroom setting, and the respondents were not described as English as foreign/second language (ESL) learners, as they are in the current study.
In the current study, the researchers hypothesized that learner interaction will be considered important to students as ESL learners coincidentally while they take Research Methodology (RM) and that interaction is an aspect of the course ‘structure’ that students will consider important as it provides opportunities for ESL improvement through elaboration, clarification, and vocabulary and fluency development.
Assuming that learning activities similar to ESL task-based interactive activities would be predictors of ESL student satisfaction and perceived learning outcomes in a ‘content course’, the overall objective of this research was to determine the existence of a relationship between variables. Student learning attitudes, perceptions on task-based interactive activities, satisfaction level and perceived learning outcomes were described and analyzed.

2. THEORETICAL FRAMEWORK.
2.1. Learning attitudes
Second Language Acquisition motivational research conducted by Gardner and Lambert (1959) provides some insight regarding why a social construction approach to learning language would be attractive to ESL students. Their construct characterizes language learning motivations as integrative and instrumental. Integrative motivation relates to learners' desires to involve themselves in a speech community. Instrumental motivation implies perceived and tangible advantage obtainable as a learning outcome, such as grades or promotion.
In the current study, students were asked how they feel about the purposes of taking courses such as RM in English, the balance of importance of learning English and research methodology, communicating in English and whether satisfaction were solely conditioned on grades. The researchers hypothesized:

H1a: Learning attitudes significantly influence student satisfaction.

H1b: Learning attitudes significantly influence learning outcomes.
2.2. Task-based interactive approach

While the term ‘task-based interactive approach’ is terminology borrowed from the ESL instruction domain, the term as used here involves general active learning principles. As such, the motivating theories find complementation and resonance in a Content-Based Instruction (CBI) environment.

When students are enrolled in university courses in a second language which they have not formed what is commonly thought of as ‘complete mastery’, especially when they are enrolled as a group in an otherwise ‘mainstream course’ conceptually equivalent as one for ‘native speakers’, then a CBI context tacitly exists. In contrast to this concept of ‘context’ is the practice of CBI as an approach. As an approach, its purpose is to provide simultaneous instruction to ESL learners in English and ‘content areas’ (Brinton, Snow, and Wesche, 1989). Instruction in the CBI classroom will be informed by some degree of balance between ESL instruction and the particular content area.

ESL instruction is strongly informed by active learning theory. This practice of providing purposeful and practical social foci for language instruction is an offshoot of Communicative Language Teaching, which typically incorporates features such as learning to communicate through target language interaction, the inclusion of authentic texts, opportunities for learner reflection on learning, valuing the learners’ personal experiences as contributions to classroom learning, and attempts to connect classroom learning to real life goals, needs and contexts (Nunan 1991). Task Based (language) Instruction involves students interacting socially to complete meaningful tasks, usually of a 'non linguistic' nature, meaning they are not focused on a grammatical form or vocabulary list (Prabhu, 1987). The implication here is that language instruction does not need to focus and restrict student attention to a set of language forms for practice, and that by establishing the conditions for meaningful interaction instructors can establish conditions for language learning.

The Interaction Hypothesis may be referred to for an explanation of why this is so. This theory suggests that language proficiency is promoted by immediate, spoken, interaction and communication (Long, 1996), especially when it is accompanied by the need to negotiate and refine communication to achieve a mutual and compatible understanding (Ellis, 1997, p. 95).

The parallels in active learning pedagogy beyond the ESL classroom are telling. According to the engagement theory of Kearsley and Shneiderman (1998), “... students must be meaningfully engaged in learning activities through interaction with others and worthwhile tasks”. The theory provides for interaction with content placing special emphasis on human interaction (Miller, 2015).
In the current study, active learning pedagogy refers to the task-based interactive approaches like group discussion, peer critiquing, peer pair quiz, and peer pair presentation and takes into account the learners’ needs to develop English communication skills while learning the course content. The study focuses on learner-learner interaction. The instructional structure of these learning activities requires students’ active engagement with peers to accomplish task assignments/requirements in RM. The researchers hypothesized:

H2a: A task-based interactive approach will lead to a higher level of ESL student satisfaction.

H2b: A task-based interactive approach will lead to a higher level of perceived learning outcomes.

2.3. Student satisfaction
Moore (2009) cited the Sloan Consortium definition of student satisfaction as “Students are successful in the learning experience and are pleased with their experience.” Sweeney & Ingram (2001) define student satisfaction as “the perception of enjoyment and accomplishment in the learning environment.” Both definitions imply a sense of success and accomplishment in the learning experiences; both imply positive feelings of pleasure and enjoyment. Gray & Diorite (2016) cited the complex model developed by Marsh & Roche (1997) for defining students’ perceptions of satisfaction in terms of: learning value, instructor enthusiasm, rapport, organization, interaction, coverage, and assessment.

In this study, ESL student satisfaction refers to the students’ positive feeling of pleasure and perceived accomplishment in their learning experiences. Aspects in the learning experiences are interactive activities, English learning opportunities, course content, course textbook, assessment tools and instructor’s course design.

3. METHODOLOGY.
Descriptive-correlational research was used in the study. Convenience and purposive sampling were used for the survey instrument. Of the 100 students invited to participate in the study who were enrolled in RM in spring 2017 at Wenzhou-Kean University in China, 72 completed the ESL Student Satisfaction survey online; a response rate of 72%.
Content validity of the self-constructed questionnaire was established based on extensive literature review that the researchers believed to be logically related
INFLUENCE OF LEARNING ATTITUDES AND TASK-BASED INTERACTIVE APPROACH ON ESL-STUDENT SATISFACTION AND PERCEIVED LEARNING OUTCOMES IN A RESEARCH METHODOLOGY COURSE

with the variables of the study. A 5-point Likert scale was used for participants to indicate their attitudes and perceptions related to learning attitudes, task-based interactive approaches, ESL student satisfaction and perceived learning outcomes. Numbers closer to 1 represented strong disagreement (SD) and number closer to 5 represent strong agreement (SA). The “Student Learning and Satisfaction in Online Learning Environments Instrument” developed by Gray and DiLoreto (2016) was the model in developing the concepts of the research instrument.

Mean and standard deviation were used to calculate responses to the scaled questionnaires of learning attitudes, task-based interactive approach, student satisfaction and perceived learning outcomes. Bivariate Correlation Analysis, using Pearson-Product Moment was used to measure relationships between two random variables to determine the strength and direction of the linear relationship. Multiple regression analysis was used to determine correlation between criterion variables, and the best combination of predictor variables, and relative importance of each variable in the equation. The level of significance used for each test was set at 0.05.

4. RESULTS.
4.1. Descriptive analysis
Table 1 summarizes the means of the variables. Descriptive statistics revealed that learning attitudes ranged from 1.00 to 5.00 with a mean of 3.97 and a standard deviation of .5698. Task-based interactive approach, ESL student satisfaction, and perceived learning outcomes ranged from 1.00-5.00 with various means and standard deviations (see Table 1).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
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<tr>
<td>Learning Attitudes</td>
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<td>5.00</td>
<td>3.97</td>
<td>.5698</td>
</tr>
<tr>
<td>Task-Based Interactive Approach</td>
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<td>5.00</td>
<td>4.04</td>
<td>.5337</td>
</tr>
<tr>
<td>Interactive Activities</td>
<td>1.00</td>
<td>5.00</td>
<td>4.04</td>
<td>.6024</td>
</tr>
<tr>
<td>Group Discussion Activities</td>
<td>1.00</td>
<td>5.00</td>
<td>4.12</td>
<td>.6581</td>
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<tr>
<td>Peer Pair Presentation/ Peer Pair Quiz</td>
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<td>5.00</td>
<td>3.89</td>
<td>.7636</td>
</tr>
<tr>
<td>ESL Student Satisfaction</td>
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<td>4.00</td>
<td>.5945</td>
</tr>
<tr>
<td>Perceived Learning Outcomes</td>
<td>1.00</td>
<td>5.00</td>
<td>4.17</td>
<td>.6949</td>
</tr>
</tbody>
</table>

Table 1: Descriptive Statics of Variables/Constructs
4.2. Bivariate correlational analysis
To establish relationships of independent and dependent variables, researchers used Bivariate Correlational analysis as shown in Table 2. All independent variables were positively and strongly correlated with dependent variables. The two dependent variables, ESL student satisfaction and perceived learning outcomes showed the strongest relationships of the variables of this study \( r = .77 \) at the .05 level of significance.

<table>
<thead>
<tr>
<th>Learning Attitudes</th>
<th>ESL Student Satisfaction</th>
<th>Perceived Learning Outcome</th>
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<td></td>
<td>R</td>
<td>R</td>
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<tr>
<td>Learning Attitudes</td>
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<td>.717*</td>
</tr>
<tr>
<td>Task-Based Interactive Approaches</td>
<td></td>
<td></td>
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<tr>
<td>• Interactive Activities</td>
<td>.752*</td>
<td>.767*</td>
</tr>
<tr>
<td>• Group Discussion</td>
<td>.535*</td>
<td>.571*</td>
</tr>
<tr>
<td>• Peer Pair Presentation/ Peer Pair Quiz</td>
<td>.416*</td>
<td>.479*</td>
</tr>
<tr>
<td>Overall Task-Based Interactive Approaches</td>
<td>.679*</td>
<td>.726*</td>
</tr>
<tr>
<td>ESL Student Satisfaction</td>
<td>1</td>
<td>.766*</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level

Table 2. Bivariate Correlation of all Variables

4.3. Multiple regression analysis
As both independent variables showed statistically significant strong and positive relationship to the dependent variables, the researchers further conducted multiple regression analysis. The multiple regression model is used to determine the strength of effects of independent variables on dependent variables, and to forecast how changes among independent variables will impact dependent variables.

<table>
<thead>
<tr>
<th>Influence on ESL-Student Satisfaction</th>
<th>Adjusted R²</th>
<th>Coefficients</th>
<th>P-Value</th>
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<tr>
<td>R²=.615*</td>
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<td></td>
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<td>Learning Attitudes</td>
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<td>+.476</td>
<td>5.52E-06</td>
<td></td>
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</table>

* Correlation is significant at the 0.05 level

Table 3: Coefficient of Determination \( (R^2) \) Model Results
Using the adjusted $R^2$, results explain that 60.4 percent of variation in ESL student satisfaction and 63.1 percent variation in perceived learning outcomes can be accounted for by changes in learning attitudes and task-based interactive approaches (See Table 3).

5. IMPLICATIONS/DISCUSSION.

The study examined factors that influence both student satisfaction and perceived learning outcomes of ESL learners’ studying in a CBI context. The research model was tested using multiple regressions on the survey data. Findings showed that learning attitudes and task-based interactive approaches significantly influenced both ESL student satisfaction and perceived learning outcomes.

Contrary to previous research (Gray and DiLoreto, 2016; Eom, Ashill and Wen, 2006), the study found strong and positive relationships for learning attitudes and student interaction, as actualized within task-based interactive approaches, on both satisfaction and perceived learning.

This outcome was predicted given the nature of the duality of learning agenda in CBI—language and content—and integrative motivation for language learning. It was confirmed that students’ motivation was more integrative than instrumental through comparison of mean scores, on a 5 point scale on two relevant questions: “Communicating effectively in English makes me feel good” ($\bar{X}=4.22$) and “Only good grades make me feel good,” ($\bar{X}=3.33$). That second score distinguishes itself by being the only response of 35 items to receive a mean lower than 3.8.

The prediction that students would bring language learning purposes to MR, regardless of course syllabus content, was revealed by the two highest mean scores for agreement in Learning attitudes: “It is important that (RM) supports my knowledge of research and ability to conduct it” ($\bar{X}=4.29$), and “Developing English abilities is essential to developing my research skills” ($\bar{X}=4.26$).

Descriptive analysis supports the assumption of learning effectiveness of task-based interactive approach in the development of both content and language learners’ competence. “The interactive activities provide information sharing that enhances my understanding of research methods” ($\bar{X}=4.14$); “Group discussion in English promotes more involvement and better learning compared to only listening to lectures in English” ($\bar{X}=4.13$); “Group discussion in English helps me learn how to work well with others” ($\bar{X}=4.13$).
The influence of learning attitudes and task-based interactive approach on ESL student satisfaction was revealed on three highest scores: “I am satisfied with the learning effectiveness of interactive activities” (\( X = 4.14 \)), “I am glad there were English discussion opportunities” (\( X = 4.07 \)), and “I am satisfied by how my instructor supports my English development” (\( X = 4.06 \)). Similarly, the influence of learning attitudes and task-based interactive approach on perceived learning outcome was revealed on three highest scores: “I am learning research skills that I can use in other courses and in the future” (\( X = 4.32 \)), and “I am improving my English, which will support my continued learning and future goals” (\( X = 4.19 \)). “I am learning team working skills in interactive activities” (\( X = 4.17 \)).

The findings supported researchers’ hypotheses that learning attitudes and task-based interactive approach have statistically significant influence on ESL student satisfaction and perceived learning outcomes. Considering a strong and positive correlation between independent and dependent variables was established, multiple regression analysis (MRA) was conducted. The theoretical implication of the MRA explains that 60.4 percent of the variation in ESL student satisfaction and 63.1 percent of the variation in perceived learning outcomes can be accounted for from the combined changes in learning attitudes and task-based interactive approaches. The practical implications of the findings are that more task-based interactive activities will lead to more student satisfaction and perceived learning outcomes in CBI contexts. Students enjoyed interactive learning and felt it was efficacious. The researchers presumed that ESL students would display these preferences because students would show a high level of integrative motivation and not differentiate greatly their approaches to learning ESL and MR. In other words, we surmise that the nature of the ESL and Content division is one of placement on a continuum rather than representing a strict dichotomy from the student viewpoint.

Classroom instructors are advised to consider this condition and cater to it as a ‘learning style’ in course planning and implementation, even though they might feel such methods slow rate of coverage. Designing communication tasks, similar to those designed by ESL instructors, has shown in this study to lead to student satisfaction that they are learning content and English, and student confidence that learning is effective. However, we recognize that these statements may depend somewhat on the specific content; computer science students and mathematics students might display other tendencies. This could be interesting direction for further studies. The results of the study provide insight into student attitudes, perceptions and satisfaction that may be of interest to instructors interested in designing
‘content’ courses in a CBI context. The implication is that such instructors can promote their students’ satisfaction in courses and their perceptions of learning by adopting active learning methods which, purposefully or incidentally, also address the learners’ ESL agenda. Interestingly, ESL student satisfaction showed a strong and positive relationship with perceived learning outcomes. Both for instructors and higher educational institutions, the model may be attractive since student satisfaction is linked to improved academic performance and recruitment of future students (Sinclaire, n.d.), continued learning (Sloan, cited in Sinclaire), and decisions to take additional classes (Booker & Remon, 2005).

6. CONCLUSIONS
A strong and positive significant correlation of student attitude and use of interactive tasks to student satisfaction and perceived learning was established for students learning in a CBI context. Students found meaning by using sessions and instruction as opportunities to collaboratively complete tasks, using English, in MR. The students expected this course to cater to dual needs to learn English and about the specific content of the course, and were satisfied when the methods provided incidental opportunities for English practice and development. We think these findings are applicable to similar students in similar programs and inform instructors to take an active learning, social construction, approach.

REFERENCES


Peer enhancement of learning and teaching for teacher educators

Jenene Burke¹, Margaret Plunkett², and Boli Li³

¹Federation University Australia
Js.burke@federation.edu.au
²Federation University Australia
Margaret.plunkett@federation.edu.au
³Chongqing Technology and Business University
b.li@federation.edu.au

ABSTRACT

Providing formal opportunities for colleagues to learn from and with each other through a relational model is recognized as an important strategy for enhancing teaching and learning for teacher educators. Peer enhancement of learning and teaching can extend to a variety of learning and teaching activities such as team teaching, dropping in to other’s sessions, moderation of assessment and feedback, joint research-student supervision, student feedback, and program and curriculum development. Peer enhancement is likely to provide opportunities for teacher learning regardless of the role occupied in the peer relationship. This paper reports on research that investigates teacher learning in a broad range of self-selected peer enhancement activities that were formally undertaken by a group of colleagues in a school of education in an Australian university. Teacher educators opted in to the scheme and developed peer projects in small teams to enhance their professional practice. The theoretical underpinning of the adopted peer enhancement model is described and justified along with the Participatory Action Research (PAR) methodology that was utilized in the study. Data were collected from teachers’ reflections on their learning in the program and from individual interviews conducted with participants. The preliminary qualitative data from the first trial of the program demonstrates the diversity of peer enhancement projects developed by the participants and the self-reported depth of their learning. The evidence shows that peer enhancement benefits the learning of all participants regardless of the role they adopt in the peer enhancement scheme.

KEYWORDS: professional learning, peer enhancement, teacher education

1. INTRODUCTION

In Australia, under the Higher Education Standards Framework 2015 (Commonwealth of Australia, 2015), universities are required to ensure that teaching staff utilize current, scholarly learning and teaching practices, that are focused on student needs. This means ensuring that professional learning is ongoing and an integral part of faculty life. While the requirements seek
assurances that teaching staff are engaging in professional learning this does
not necessarily need to take place in collaboration with their colleagues. As
Sharpe and Bolton (2016) point out, most university lecturers work in isolation
to improve their teaching practice. In contrast with individual professional
learning, which tends to be underpinned by "insistent individualism" (Light &
Cox, 2011, p. 40), a relational model, where peer assisted learning is involved,
offers distinct advantages and opportunities for professional learning. While
there is a solid base of literature about peer observation schemes in higher
education, many schemes adopt a top-down, structured model that requires
observation of individual teachers by a more senior colleague. For teacher
educators, the authors of this paper deem it important that peer supported
professional learning is underpinned by strong learning principles and supports
teacher agency and seeks to build a collegial learning culture. This paper will
report on a pilot study that investigates teacher learning in a faculty-based Peer
enhancement of teaching and learning scheme. The aim is to develop a process
and test a model that supports effective professional learning.

2. REVIEW OF RELATED LITERATURE
Providing formal opportunities for colleagues to learn "from and with each
other" (Marshall, 2004, p. 190) is an important strategy for enhancing teaching
and learning in tertiary education. Marshall sees colleagues supporting each
other's learning as having distinct advantages for their students, stating that
"peer learning is increasingly advocated as a way in which our students’
learning can be enriched by [teachers] learning from each other" (p. 186).
Indeed, students are seen as the ultimate beneficiaries of a peer observation
scheme (Donnelly, 2007). Terminology used to describe peer assisted
professional learning includes 'peer observation', 'peer review', and 'peer
enhancement'. Differentiation between these terms and what they typically
offer is important.

2.1 Peer Observation/Peer Review
Peer review of learning and teaching involves "academic colleagues giving and
receiving feedback on their practices and its effectiveness in promoting student
learning" (Harris, Farrell, Bell et al., 2008, p. 5). Originating from a
professional capacity-building perspective, Sharpe and Bolton (2016) argue in
favor of the need for academics to exercise "independent judgement in their
scholarship, in their professions and in their lives" (p. 1) and suggest that
academic teachers who engage in reflection on their own practice can
encourage their students, in turn, to exercise professional judgement in their
professional lives. Peer observation is considered a valuable activity for the
observer (as well as the observed) (Hendry & Oliver, 2012).
2.2 Peer enhancement
The academic literature on peer enhancement describes it as an advancement on peer review and on individual schemes in general, in that it offers distinct benefits and advantages as a methodology by which professional learning can take place for higher education teachers. A scheme of peer enhancement of learning and teaching is likely to build a “more pervasive and continuous culture of working together to improve learning and teaching” than peer observation (Marshall, 2004, p. 189). Furthermore, peer enhancement is likely to augment peer observation in a greater variety of learning and teaching interactions (Marshall, 2004).

2.3 Teacher agency in professional learning
Felder and Brent (1999) are among others who are critical of attempts to improve teaching quality in Higher Education that adopt quality management principles and top-down organizational structures, describing them as ineffective in changing the teaching culture, tending to be short-term, and effectively divisive for staff. Peel (2005) notes that peer observation has “potential danger as a surveillance tool at an institutional level” (p. 40).

Clear distinctions between various models of peer observation are important to make the underpinning notions transparent (O’Leary, 2014). As O’Leary argues, the “boundaries between different models, contexts and purposes have become blurred and contested” but fundamentally “at the heart of these contestations lies a conflict between ‘structure’ and ‘teacher agency’, and related notions of power and control that manifest themselves in the sometimes paradoxical agendas of policy makers, the institution and its teaching staff” (p. 42). It is vital to ensure that power and control is located directly with the teacher as a learner, and that an authentic and primary emphasis on teacher professional learning that permits teacher agency is at the core of any peer learning program.

3. METHODOLOGY
Gosling’s (2002) Peer Review Model offers opportunities for a university-based professional development program where “teachers observe each other” and where they “engage in discussion about teaching” that involves “self and mutual reflection” and is likely to result in “analysis, discussion, wider experience of teaching methods” (p. 5). The status of evidence in this model is “peer shared perception” within an “equality/mutuality” relationship between the observer and the observed (Gosling, 2002, p. 5).

In trialing Peer Enhancement, in this study, characteristics of Gosling’s Peer Review Model (2002) were adopted. Table 1 provides a summary of how the
adopted faculty peer enhancement pilot scheme specifically meets the characteristics identified by Gosling’s (2002) Peer Review Model. The study was designed to engage teacher educators in learning in collaborative teams that would translate into improved teaching practices, and the use of strategies and processes responsive to personal identified professional learning needs and interests. The primary aim of the pilot program was to enhance teaching practice while developing a professional learning culture in the faculty through learning opportunities for participants and shared open dialogue about learning and teaching.

A participatory action research (PAR) methodology, where the emphasis is on participation and action, was adopted. Participants are positioned as active collaborators who create knowledge jointly (Bergold & Thomas, 2012). PAR follows a process of “act, observe, reflect, plan and act” (Kemmis & McTaggart, 1981, p. 44). The researchers, who are the authors of this paper, set up the pilot scheme and observed the process undertaken by the participants as they negotiated the process. The researchers reflected throughout the process and acted by amending the procedure of the scheme based on their shared insights and reflections. On completion of Trial One a further process of reflection on the data collected in the study informed modifications to Trial Two following the PAR methodology.

Research data included written reflections on learning by participants in the form of two documents completed by each participant, the first an individual plan, completed prior to meeting 2, and the second, a final reflection, completed prior to the final meeting. Data were also in the form of transcripts generated from taped recordings of team meetings and of semi-structured interviews (of up to 30 minutes) with individual participants on completion of the trial. Ethics approval for the study was obtained from the Human Research Ethics Committee at Federation University Australia.

### 3.1 Procedure

Academic staff in the Faculty from Arts, Humanities, and Social Sciences, as well as Teacher Education, ‘opted in’ to the scheme. For participants who chose not to participate in the research, data pertaining to their participation were not collected. Of 14 participants in Trial One, 12 agreed to participate.

<table>
<thead>
<tr>
<th>Characteristic (Gosling, 2002)</th>
<th>Peer Review Model (Gosling, 2002)</th>
<th>Faculty Peer Enhancement Scheme (Burke, Plunkett &amp; Li)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who does it and to whom?</td>
<td>Teachers observe each other</td>
<td>Participants select colleagues to work with.</td>
</tr>
</tbody>
</table>
PEER ENHANCEMENT OF LEARNING AND TEACHING FOR TEACHER EDUCATORS

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Engagement in discussion about teaching; self and mutual reflection</th>
<th>Participants attend four team meetings over the duration of the 14 week program where they discuss their projects.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome</td>
<td>Analysis, discussion, wider experience of teaching methods</td>
<td>Participants set individual, personal learning goals and analyze and discuss in peer groups and share of projects in team meetings.</td>
</tr>
<tr>
<td>Status of evidence</td>
<td>Peer shared perception</td>
<td>Groups of colleagues engage in discussion and reflection.</td>
</tr>
<tr>
<td>Relationship of observer to observed</td>
<td>Equality/mutuality</td>
<td>All colleagues work together.</td>
</tr>
<tr>
<td>Confidentiality</td>
<td>Between observer and the observed – shared within learning set</td>
<td>Shared between the team.</td>
</tr>
<tr>
<td>Inclusion</td>
<td>All</td>
<td>All faculty members are invited to ‘opt in’. Interdisciplinary teams are encouraged. Participants are recognized as having diverse experience, knowledge, skills, strengths and needs.</td>
</tr>
<tr>
<td>Judgement</td>
<td>Non-judgmental, constructive feedback</td>
<td>Descriptive comments in response to questions selected by each participant and provided by selected colleagues. Non-judgmental, constructive feedback is emphasized.</td>
</tr>
<tr>
<td>What is observed?</td>
<td>Teaching performance, class, learning materials</td>
<td>Any aspect of learning, teaching, curriculum and assessment.</td>
</tr>
<tr>
<td>Who benefits?</td>
<td>Mutual between peers</td>
<td>Projects must offer mutual benefit to participants.</td>
</tr>
<tr>
<td>Conditions for success</td>
<td>Teaching is valued, discussed</td>
<td>Reflect on learning. Growth mindset (Dweck, 2006).</td>
</tr>
<tr>
<td>Risks</td>
<td>Complacency, conservatism, unfocused</td>
<td>Participants meet milestones at specific points of the program. A written procedure and structure.</td>
</tr>
</tbody>
</table>

Table 1: How the peer enhancement scheme addresses the characteristics of Gosling’s (2002) Peer Review Model

Each volunteer was allocated to one of two interdisciplinary learning teams of six to eight individuals which met to engage in shared dialogue four times over the duration of the semester. Individuals created their own developmental project (Marshall, 2004) that relied on collegial engagement, and the team collectively decided on a way to support the learning goals of each individual.
Eight smaller peer learning projects emerged, each of which contained at least one teacher educator. Marshall (2004) provides justification for this team approach, as, “by exploring such possibilities together, colleagues will be helping to create a culture in which development and reflection as teachers together becomes normal, expected, embedded and valued” (p. 197). Reflection on their learning by participants aimed to develop ‘the reflective professional’ (Light & Cox, 2001) who “critically reflects on multiple and diverse discourses, on practice within the broader contexts and critical frameworks of his or her professional situation” (p. 12).

3.2 Data analysis
To gain insights into the lived experiences of the participants, thematic analysis (Brix, Grainger & Hill, 2014; Yiend, Weller, & Kinchin, 2014) was utilized. Thematic analysis, a valuable analytical tool for qualitative research (Braun & Clarke, 2006), is frequently used to identify, analyze and report patterns and themes emerging from the data (Braun & Clarke, 2006). It involved the systematic coding of the written reflection and semi-structured interviews to identify and qualify types of information following a similar approach to that of Yiend, et al., (2014), and Bell, Mladenovic and Segara (2010).

4. RESULTS AND DISCUSSION
A number of positive outcomes were revealed in the themes generated in the analysis of the data. The two themes that will be discussed in this paper are first, the diversity of projects devised by participants and, second, the learning described by participants.

The eight projects completed by the participants demonstrated the range of learning possibilities in the scheme as follows: Observing and reviewing each other’s online materials giving written feedback; investigating the graduate attribute of continuous teacher learning by observing each other’s teaching; viewing online courses to provide feedback on the interactive elements and scaffolding of student engagement; investigating the effectiveness and instructional design of video for teacher learning; increasing students’ engagement and supportive materials in an online course; developing a cohort supervision model for students undertaking a research pathway; designing a Literacy tutorial; examining the course description and online site.

The projects demonstrate the capability of the participants to collegially design projects and the capacity of the scheme to enable teachers to explore a variety of aspects of learning, teaching and curriculum design.

4.1 Peer enhancement and teacher learning
Evidence from the trial showed that working collaboratively with peers can prompt academic professional development and that the peer partnerships, or
mentoring relationships, can lead to professional development over time (Marshall, 2004). Peer observation is more about mutual peer learning rather than simply about the observed learning by the observer (Marshall, 2004). The power of peer observation resides in its developmental and collegial orientation and its exposure of colleagues to affirmation, constructive criticism, and the experience of how others teach differently. Indeed, in peer observation of classroom teaching, “it is often the case that the observer learns at least as much as the observed” (p. 187). In Table 2, examples of comments from participants in each of the eight projects are paired to demonstrate learning by both the peer observer and the teacher whose practice is under observation. These comments are drawn from data sourced from written reflections (WR) and interviews (I) provided by participants on completion of the project.

<table>
<thead>
<tr>
<th>PROJECT No.</th>
<th>BEING AN OBSERVER</th>
<th>BEING OBSERVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONE</td>
<td>“Looking through [peers’] online shells made me think deeply about ways that I could improve my approach…inspired me into finally giving it a go.” (WR, Peter) Reviewing other online sites, hearing other people’s ideas and receiving suggestions for change has given me a range of practical strategies and tools I can use to better promote online engagement in my course next year.” (WR, Sally)</td>
<td>“[The] process of letting people into your ‘space’ to help improve what you are doing has been enormously useful for my practice.” (WR, Sally) “The feedback was positive, honest, meaningful and useful and has given me lots of ideas to improve my online teaching.” (WR, Peter)</td>
</tr>
<tr>
<td>TWO</td>
<td>“When recording observations I found myself having to make critical decisions and judgements based on criteria from our template.” (WR, Molly) We discussed this opportunity for improvement before the last observation and she implemented this [technique] into her class. This is something that I will be implementing into my classroom too.” (I, Roger)</td>
<td>“[Peer’s] presence in my room seemed to enhance my own reflection. I found myself more aware of my own teaching; the questions I asked, my wait time and responses, the way I articulated instructions and my interactions with students. I also became aware of the model we were presenting for students.” (WR, Molly) “This experience challenged my thinking and helped me realize where I could make my teaching more explicit.” (WR, Molly)</td>
</tr>
<tr>
<td>THREE</td>
<td>“I found that providing and seeing how she had set up her course has given me inspiration to extend the</td>
<td>“[Peer’s] feedback was detailed and very helpful, and several of her comments drew my attention to</td>
</tr>
<tr>
<td></td>
<td>aspects of my practice I can develop further.” (WR, Mark)</td>
<td></td>
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<tr>
<td>--------</td>
<td>----------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>FOUR</td>
<td>“Getting feedback during the task helped with direction and problem solving…I learnt how to turn a project idea into a helpful written piece on video.” (WR, Sylvia)</td>
<td></td>
</tr>
<tr>
<td>FIVE</td>
<td>“Feedback on suggestions that we agreed on increased students’ engagement.” (WR, Arthur)</td>
<td></td>
</tr>
<tr>
<td>SIX</td>
<td>“I learned that I need to choose the important concepts from readings and assessments and link students’ contributions to a task or grade.” (WR, Arthur)</td>
<td></td>
</tr>
<tr>
<td>SEVEN</td>
<td>“From feedback on the structure of the sessions, I was able to develop my understandings of how to introduce the beginnings of the research process to students.” (WR, Nicole)</td>
<td></td>
</tr>
<tr>
<td>EIGHT</td>
<td>“I received commentary on the course which brought up a number of structural issues with the course pertaining to policy on essay length, and which skills were aligned with which tasks.” (WR, Mahmoud)</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Participant perceptions of being observed and being an observer

Donnelly (2007) emphasizes the desired ‘climate’ of peer observations in which “dialogue, encouraging of open debate and supportive of risk-taking in teaching” (p. 4) are considered important. Insights into personal practice are gained both from the act of observing as well as from being observed (Martin & Double, 1998). For example Project One (see Table 1 and 2), had adopted a system of triads whereby each person was observed by the other two within their group, with all lecturers taking on the roles of `observer' and `observed'. Each member of the triad observes and is observed and consequently has the opportunity to learn through exchanges with others. This process allows teachers to develop their teaching with support of the other triad members.
5. CONCLUSIONS

Peer observation of teaching, following Gosling (2002) and Yiend et al, (2014), is a powerful tool that encourages reflection on teaching practice, and fosters debate and dissemination around effective practice. The indications of the first trial of this small scale study of peer enhancement of learning and teaching is encouraging and further refinement of the scheme as we progress into Trial Two is expected to provided further evidence of learning for teaching staff in a variety of tailored, peer supported learning projects.

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Responsive teachers in inclusive practices

Hafdís Guðjónsdóttir¹, Edda Óskarsdóttir², and Jóhanna Karlsdóttir³

¹University of Iceland
hafdgud@hi.is
²University of Iceland
edo6@hi.is
³University of Iceland
johannak@hi.is

ABSTRACT
Ideas of inclusion assume that every student has equitable access to education and that schools organize learning spaces that accommodate everyone. For teachers, it is a continuous search for pedagogy and approaches to meet diversity in inclusive schools. They are the key to developing inclusive practices and pedagogies in dealing with heterogeneous classes, because they are the ones who decide and develop the learning environment where students are meant to learn and work within the structures of the school system. The study was qualitative and conducted in collaboration with six school teachers who were purposefully chosen to participate. Data was collected through reiterated cycles of note taking, photographing, videotaping, and two focus group interviews. The purpose of the study was to collect examples of innovative teaching in order to promote the construction of inclusive pedagogy and education for all in inclusive environments. The aim was to learn how teachers organize their subject teaching in diverse and inclusive classrooms. The findings indicate that teachers’ beliefs and openness towards diverse students are important for supporting learning for all students. Further, the findings give an insight into an inclusive pedagogy that teachers have created.

KEYWORDS: inclusive pedagogy, responsive teachers, inclusive practice

1. INTRODUCTION
Inclusive education is an on-going act directed towards quality education for all. Issues around the terminology are challenging, but the main objective is to respect student differences and to eliminate all forms of discrimination (UNESCO, 2008). Because of the defined right and the encompassing mandate laid out by the UN Convention, all schools and education systems in Europe face the challenge to develop an inclusive culture, inclusive structures, and inclusive practices (Ainscow, 2008).
Following the educational legislation in 2008, a new national curriculum for early childhood, compulsory and upper secondary education came into effect in Iceland in 2011. The curriculum guide presents a move from detailed
objectives towards a focus on learning outcomes and basic educational ideas. The educational policy evident in the national curriculum is based on six fundamental pillars of literacy in the widest sense, education for sustainability, democracy and citizenship, education for equality, creativity and health (Ministry of Education Science and Culture, 2011). This means that teachers in Iceland are continuously searching for pedagogy and approaches to meet both the demands of the curriculum and student diversity in inclusive schools. Teachers are the key to developing inclusive practices and pedagogies in dealing with heterogeneous classes, because they are the ones who, based on their beliefs and knowledge, decide and choose the learning environment where students are meant to learn and work within the structures of the school system (Ainscow, 2008; European Agency, 2003). The goal of this research was to learn how teachers in Iceland organize their subject teaching in diverse and inclusive classrooms and to collect examples of innovative teaching. The question that lead the research was: How are teachers responding to diverse students in their subject teaching?

2. THEORETICAL FRAMEWORK
The fundamental theoretical foundation in the Icelandic school community involves inclusion, accessibility and the participation of all students in the school environment. Diversity and different needs, students’ abilities and other characteristics are respected and every kind of discrimination and exclusion in schools is eliminated (Ministry of Education, Science and Culture, 2011). This calls for a creation of inclusive practices and inclusive pedagogy in schools. Inclusive education builds on vision and hope for a better school for all and the dimensions are human rights, justice, and respect for differences, democracy and active participation of all students in the public-school system. Ideas of inclusion assume that every student has equitable access to education and that schools organize learning spaces that accommodate everyone in the spirit of universal design. The practice of teaching diverse groups of students is then grounded in pedagogy that includes more than a skill in using prescribed instructional practices. Rather, this practice integrates professional knowledge about teaching, learning and child development, and involves an ethical and social commitment to children (Guðjónsdóttir, 2000).

Teachers in these practices understand the experiences and perspectives their students bring to the educational settings and respond to the diversity in the group as they design the curriculum, learning activities, classroom climate, instructional materials, teaching techniques and assessment procedures (Gay & Kirkland, 2003). Pedagogical qualities of the responsive professional teacher are witnessed in teachers who understand child development and individual
Responsive Teachers in Inclusive Practices

359
differences, are committed to the education of all students, and who have a knowledge base which enables them to differentiate between students as they develop a curriculum for all (Guðjónsdóttir, 2000). Thus, inclusive education calls for changes and development in teachers’ work and classroom practices as they attend to diverse groups of students and build the teaching on the individual as well as the whole group (Day & Gu, 2010; Guðjónsdóttir, 2000). The main emphasis is on carefully planned teaching, conducted in a way that supports students in improving their learning (Arthur-Kelly, Gordon, & Butterfield, 2003; Idol, 2006). Therefore, it is in the hands of teachers to change and develop pedagogy, curriculum and assessment to benefit all students.

Pedagogy is composed of the act of teaching and the ideas, values and beliefs informing, sustaining and justifying that act (Alexander, 2013). The term pedagogy appears in the educational literature to explain the disparate and complex issues of the teaching profession. Three consistent uses of the term ‘pedagogy’ can be found in the literature; (a) to cover teaching methods, instructional programs and curricula; (b) as an all-embracing term for education in poststructuralist thought; and (c) to express and address moral education and discourse about teaching and learning (Bruner, 1996; Freire, 2005; Van Manen, 1991, 1999). A fundamental premise in the inclusive pedagogy approach is based on rejecting ability labelling as a deterministic notion of fixed ability that has historically underpinned the structure of education (Florian & Spratt, 2013). Thus, inclusive pedagogy is particularly aimed at contesting practices that represent provision for most with additional or different experiences for some (ibid.), because the very act of focusing on difference intensifies the isolation and marginalization of children and adds to the social construction of disability (Grenier, 2010).

By incorporating pedagogical knowledge, understanding and skills into practice, an opportunity to differentiate among students, contexts, methods, materials, resources and outcomes is created in designing a curriculum for all students. Teachers, in planning their teaching and providing scaffolding for students, can create a space to include everyone in the general classroom by drawing on students’ resources. However, it is not only the classroom teacher who needs to be aware of the diversity in the student group, subject teachers need to be aware of that also. As they plan their subject teaching they must consider that students learn in different ways.

3. METHODOLOGY
This research builds on qualitative methodology. The purpose of the study was to collect examples of innovative teaching in order to promote the construction of inclusive pedagogy and education for all in inclusive
environments. The aim was to learn how teachers organize their subject teaching in diverse and inclusive classrooms.

The research questions:
- How are teachers responding to diverse students in their subject teaching?
- How do teachers organize and plan their teaching?
- What kind of support do teachers ask for and what kind of support do they receive?

Three participatory researchers from the University of Iceland and six school teachers from four compulsory schools participated in this research. The school teachers were chosen purposefully and invited to participate as practitioner researchers. They teach at different grade levels, in different subjects, and some are also classroom teachers; all are experienced teachers who have taught for 10-30 years and are known for their innovative practices.

Data was collected through reiterated cycles of participant observation and interviews. The researchers collaborated as they collected the data through field observations by note taking, photographing and videotaping the practice in each inclusive practice. Semi-structured interviews were chosen to elicit the views of the participants as clearly and accurately as possible, as well as two focus group meetings that were held with all the six teachers.

The analytical process took place concurrently through the research period using qualitative procedures of content analysis, coding and constant comparison (Wolcott, 2005). To enhance the credibility of data, multiple sources (six teachers), data collection methods (interviews and field observations), time (reiterated cycles of data collection) and modes of analysis were used.

4. CREATING INCLUSIVE PEDAGOGY

The findings reveal three main themes emerging from the interviews and observations. The first theme illustrates how the teachers understand inclusive education and how that affects their teaching. The second theme informs about how teachers organise and prepare their teaching in different subjects for diverse students. The third theme focuses on the role of collaborating with other teachers and support staff in creating inclusive environments.

4.1. Understanding inclusive education

All of the teachers showed that they have a conceptual understanding of inclusion. Hrafnhildur stated: “I think that student’s well-being is most important in inclusive schools. And that everyone can achieve their goals.” While Ásta discussed that “it is most important that we have equal rights. We
should all have equal rights to employ our strengths whoever we are. We are all
different and the bottom line is that we should enjoy our strengths.”
All of the teachers emphasise the importance of attending to the differences
between students, not to focus on sameness. As Fanney explains:

“Inclusive education demands that the teacher has diverse ways of teaching. I
cannot have the same material for all, I have to plan it carefully and that is more
fun and more interesting for students. We are not all the same and that is
important for everyone to understand.”

Attending to diversity then also means having multiple ways of teaching to
accommodate to the different ways students learn. The teachers discussed that
they need to respect the different abilities students bring into classroom, but
that it is no less important that students learn to respect and value each other’s
differences and strengths.

4.2. Preparing teaching in subjects
The teachers emphasise that when they prepare teaching they think of the
whole group and that they adjust their planning to each group, as each group is
different. Fanney, who teaches English in 9th grade explains her preparations:

I have [...] really a diverse group. This means I have to think about the group. I
teach two groups English in 9th grade. But this doesn’t mean I can teach the same
way. For example, today I was teaching English poetry and in this group I have a
student that is very dyslexic so I think about how I can help him to work with the
poetry. [...] So it often helps me in preparing lessons to think about the students
that need a lot of support and then I find some solutions that work for everyone,
like today.

Hrafnhildur, who teaches swimming in a compulsory school, has the same rule
when she prepares her teaching and she focuses on the goals of the lesson:

When I’m planning teaching for a diverse group of students I mainly keep in mind
that the learning goals are appropriate for all students, no matter if these goals are
the same or not. I plan the lesson for everyone, there are some that are afraid of
water, others that can’t do this or that, and then are some new in the Icelandic
school and haven’t had swimming lessons before.

Ásta, a support teacher at primary level, thinks about the way she can
accommodate to student differences in her preparations:

I might have one assignment and it needs to be presented for different levels of
difficulty. [...] In this way I try to adapt the assignments to the students’ abilities. So
that everyone can do the assignment in some way with different levels of
support... I always have to keep the individuals in mind each time when I’m
planning my work.
Furthermore, in their preparation the teachers take into account students’ interest, what would get them interested in wanting to do the assignments. They have found that group work, playing games and having fun has positive effects on students’ success in school. It can give teachers insight into students’ abilities and cast a light on their social dynamics. Eyrún stated that having her second-grade students learn folklore and fairy-tale through acting them out meant that she “learnt a lot about her students, some showed new talents in directing and acting, while others showed how knowledgeable they were of fairy-tales and folktales that they shared with their classmates.”

4.3. Working with others

Working with and through others in preparing teaching and inside the classroom was emphasised as important for reaching all students. With the support of special educators, teacher assistants or social educators, the teachers meant they were able to create a learning space that could include all of their students, providing differentiation and meeting students’ needs. As Fanney explains:

When I work with the special needs teachers, I first decide on an assignment and then I get the special needs teacher to review it for me and find ways to adapt it for some students. This collaboration has been very successful. It makes my life and work a little easier.

In some cases, the teachers thought that the presence of assistants inside their classrooms distracted students like Hrafnhildur who works with the support personnel but also states that although “many students in the school have support, I don’t want the support personnel to come into the swimming pool because I feel that it distracts the student. The students work well with me and while that works, they come here unsupported.”

Ásta has many years of teaching experience and is building a new role for herself as a support teacher in her school.

In my work, I now increasingly am taking students out of their classroom to work with me. These students might need more practice, for example with learning to read. Even though I try to plan their work so that they enjoy coming here and enjoy the work, I am still in my heart not pleased with this arrangement. I feel that the learning should take place in their classrooms, as much as possible.

In her words a dilemma can be detected in that she would like students to be in their classrooms with their classroom teacher and peers, but in her role, she is expected to take them out to work with them in small groups. She collaborates
with the classroom teachers to assess if the students can take part in what is happening in the classroom or if they should work in small groups with her.

5. DISCUSSION

The pedagogy that the teachers in this research employ can be said to fall under the three fundamental pedagogical principles Hart, Drummond, and McIntyre (2007) identified as necessary for the development of inclusive practices. To begin with, there is the principle of everybody that relates to the responsibility the teacher has towards her students, in the sense that the teacher is responsible for and committed to the education of all the students in the classroom, not just some of them. This responsibility can however be shared with other staff, such as special education or assistant teachers who collaborate with the teacher in supporting the students. The second principle addresses co-agency, where the student is seen as an active agent in his/her education and there is the interplay between the teacher and the student. The teacher creates learning spaces for the students, but the students are responsible for their learning with the support from the teacher. The last principle is that of trust, in that the teacher trusts that students want to learn and does not blame them when they do not learn. The teacher asks what needs to be different for students who are unsuccessful in their learning, what needs to be changed in the learning environment, materials or activities, rather than asking what is wrong with the student (Hart et al., 2007).

6. CONCLUSIONS

The findings indicate that to promote inclusive education that supports learning for all students, teacher beliefs about inclusion are important as well as their openness towards diverse students. Further, the findings give an insight into the inclusive pedagogy that the teachers have generated. The important features of the inclusive pedagogy are that teaching is planned for all students based on the goals to be reached, the use of innovative strategies in teaching, use of group work where students get the opportunity to set their goals and work towards them. The inclusive pedagogy is also based on a cooperation between the subject teacher and others in the school, such as special needs teachers, support teachers and teacher assistants, to strengthen the ability to reach the diverse group of students.

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An attempt to study different forms of supportive roles in school based professional development. Significant elements and similarities

George Bagakis

University of Peloponnese, Greece
gbag@otenet.gr

ABSTRACT
In this paper an attempt is made to review five supportive roles related to four different frameworks of school based professional development, namely, the roles of facilitator and critical friend in action research, the role of critical friend in school self-evaluation, the role of tutor in fostering teacher leadership and the role of mentor in mentoring within the Greek context. This review focuses on experiences from Greek and international projects carried out in Greek schools as well as on specific characteristics of each of the four frameworks. Through comparison of these roles, differences and similarities emerge amongst them as well as particularities in their function concerning the feasibility to find and train them personnel to assume such roles in schools. Additionally, the possibility of using the advantage of this review in the official planning and attainment of professional development in Greece is briefly discussed.

KEYWORDS: professional development, mentor, critical friend, facilitator, tutor.

1. INTRODUCTION
School based professional development has been widely extended in recent years, taking different forms within different contexts and countries (Bagakis, 2016). A crucial element for the success of these approaches is the type of support which is provided through different types of supportive roles for various modes of school-based professional development, such as those related to mentoring (Bubb and Early, 2010), action research (Elliott, 1991), school self-evaluation (MacBeath, 2006; MacBeath, Schratz, Meuret, Jacobsen, 2000), and teacher leadership (Frost, 2014; Frost and Durrant, 2003). In this paper an attempt is made to critically review such roles in order to bring to light significant traits in each of them as well as significant differences and similarities among these roles. To this end, experiences from cases and programmes where such roles existed in regard to the frameworks of the Greek context will be studied. Within this context, new policies related to the frameworks of school based professional development are described in certain
cases, although the elaboration of the supportive roles regarding these policies remain limited.

2. THEORETICAL FRAMEWORK

Although supportive roles display similarities within different school based professional development approaches, it is rather rare to find investigations of a set of them in order to reveal specific traits as well as differences and similarities as they occur in a certain phase of their development in a country. In this paper we will mainly focus on facilitators and critical friends in action research (Didachou, 2016), critical friends in school self-evaluation (Bagakis, 2017), tutors in teacher leadership (Vitsaki, 2016) and mentors in mentoring (Bagakis and Tsigkou, 2017). The first three supportive roles are comparatively old, while the other two are rather new for Greece. We will attempt to detect useful elements in the previously defined direction in order to take advantage of them for the training in such supportive roles, towards an effective and efficient school based professional development. We will mainly investigate Greek and international projects of professional development carried out in Greek schools. It is perhaps worthwhile to underline that such an attempt seems to be particularly useful since school based professional development, is not a primary concern but is rather something which is under development in certain countries, such as Greece (Bagakis, 2016). Thus, an articulated description of the use of such roles could prevent such sensitive types of professional development from failures or degeneration as has already occurred in a few cases. Additionally, it can clarify and strengthen their use as well as highlight crucial negative and positive traits to take advantage of (Bagakis, 2017).

3. METHODOLOGY.

This paper presents an investigation of a selection of a set of supportive roles which are used in four different frameworks of school based professional development in Greece,— namely action research, school self-evaluation, fostering teacher leadership and mentoring. In all these frameworks, well-defined supportive roles are a prerequisite for success, and, more specifically, the roles of facilitator and critical friend in action research, the role of critical friend in school self-evaluation, the role of tutor in the case of fostering teacher leadership and the role of mentor in the case of mentoring. In order to achieve this target, an initial description of these five supportive roles and their four frameworks within the Greek context seems indispensable and is summarized as follows:
a. In reference to action research, different experiences from small scale programmes from 1990s up until now have been accumulated. We can underline the need of the role of facilitator and critical friend and the difficulties to find sufficiently capable persons in order to play the role of the facilitator. Most facilitators derive from university departments and most critical friends in this case derive from schools. It is rather difficult to find a capable facilitator for action research whose role is crucial for its successful realization.

b. Concerning school self-evaluation, various experiences have been accumulated ranging from small scale programmes to the widespread obligatory implementation of school self-evaluation in Greece. From the first European project in 1997 (MacBeath, Schratz, Meuret, Jacobsen, 2000), till the last massive national programme of school self-evaluation, which was implemented in the period 2011-2015, an enormous amount of experience has been accumulated and significant academic (Demertzi, 2007) and more practical work has been reported concerning the critical friend in school self-evaluation (Bagakis, 2017). In this context, the crucial role is noted of sufficiently capable critical friends with the proper expertise which cannot be ensured only from the formal institutions of the responsible school advisors for professional development.

c. In the last few years, the fostering of teacher leadership through a tutor is another direction which has seen limited application, mainly within certain experimental international programmes of teacher leadership or infrequent programmes of professional development (Vitsaki, 2016).

d. Finally, mentoring for newly qualified teachers is another framework which rarely appears formally in Greek schools, although there was an attempt by the Ministry of Education to introduce it to all Greek schools in 2011. However, this attempt was finally withdrawn (Bagakis and Tsigkou, 2017). Although relevant literature concerning mentoring has accumulated, the role of formal mentor is not well defined so far and there are very few empirical studies on the application of mentoring in Greece (Bagakis, 2016; Bagakis and Tsigkou, 2017).

In order to further clarify our efforts, a short description of the Greek educational context where these supportive roles are used seems to be necessary. School based professional development is not a main trend in Greece, although there are recent international recommendations (OECD, 2011) for overcoming the more traditional big and expensive “In Service Training Programmes” on the one hand and experience accumulated on school based professional development the last decades on the other (Bagakis, 2016). However, it has to be underlined once again that, nevertheless, school based professional
development is still rather marginal, although in some cases, it consists a popular trend for certain well informed teachers (Bagakis, 2016).

4. RESULTS.

If we try to investigate the selected supportive roles within their frameworks in Greece, the following results emerge:

a. Facilitator and critical friend within the framework of action research. The need for facilitators and critical friends (Elliott, 1990) became apparent during the 1990s when action research appeared in Greece. The more crucial and demanding role of facilitator for the realization of action research is not always easily found nor is it easy to train facilitators. On the contrary, the critical friend within the framework of action research can be found more easily. Up until now, action research has been more widespread and more well known, mainly in various national bottom-up small scale projects, dissertations etc. (Bagakis, 2016; Didachou, 2016).

b. Critical friend within the framework of school self-evaluation. School self-evaluation appeared in Greece towards the end of the 1990s and the critical friend within its context is always a crucial and difficult role. Although in small scale projects of school self-evaluation there was careful use of critical friends (Demertzi, 2007) within the framework of international projects, this was not the case in more official large scale projects where critical friends were formally and ex-officio designated (e.g. school advisors responsible for each school area). In the first case, heavy theoretical and methodological armory was gradually and carefully used while, in the second case, there was quite often a rather bureaucratic or managerial involvement with correspondingly poor or negative results (Bagakis, 2017).

c. Tutor within the framework of fostering teacher leadership. A few small scale programmes to foster teacher leadership have taken place since 2010 in a limited number of schools and periods. During the first periods, tutors who were already experienced in similar roles were very carefully trained within the framework of an international project (Vitsaki, 2016). The same tutors continued in the same way within national programmes of professional development in limited number of schools.

d. Mentor within the framework of mentoring of newly qualified teachers. The mentor is a rather easier role which was applied in limited number of schools mainly since 2010. Mentors, who were experienced classroom teachers, were systematically trained within an international framework of trainers for a Greek project of professional development. The outcomes were very positive (Bagakis and Tsigkou, 2017). Independently of the above, extensive detailed discussions took place regarding official or nationwide top-down implementation from the
AN ATTEMPT TO STUDY DIFFERENT FORMS OF SUPPORTIVE ROLES IN SCHOOL BASED PROFESSIONAL DEVELOPMENT. SIGNIFICANT ELEMENTS AND SIMILARITIES

Ministry of Education in 2011, but which was finally withdrawn because of changes in the central policy.
A more schematic depicting of the above follows in the table:

<table>
<thead>
<tr>
<th>Framework</th>
<th>Action research</th>
<th>School self-evaluation</th>
<th>Fostering teacher leadership</th>
<th>Mentoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supportive role</td>
<td>Facilitator</td>
<td>Critical friend</td>
<td>Critical friend</td>
<td>Tutor</td>
</tr>
<tr>
<td>Firstly initiated</td>
<td>1990s</td>
<td>1990s</td>
<td>1990s</td>
<td>2010s</td>
</tr>
<tr>
<td>Type of projects involved</td>
<td>Mainly bottom-up projects</td>
<td>Mainly bottom-up projects</td>
<td>Bottom up and top down projects</td>
<td>Infrequent bottom-up projects, although there were discussions for official universal top-down implementation which was finally withdrawn</td>
</tr>
<tr>
<td>Formal policy involved</td>
<td>-</td>
<td>-</td>
<td>In certain cases</td>
<td>-</td>
</tr>
<tr>
<td>Difficulties to find them</td>
<td>Rather difficult</td>
<td>Rather easy</td>
<td>Very difficult</td>
<td>Very difficult</td>
</tr>
<tr>
<td>Peculiarities of the role</td>
<td>Training and relative experience is needed</td>
<td>Very small training/guidance is needed</td>
<td>Training and relative experience is needed</td>
<td>Training and relative experience is needed</td>
</tr>
</tbody>
</table>

Table 1: A short description of selected supportive roles as they are used in Greece

5. IMPLICATIONS/DISCUSSION.
The description of supportive roles within a comparative framework could possibly facilitate the selection of feasible and proper school based professional development. For example, a very demanding supportive role such as the critical friend in school self-evaluation could be difficult to find for a particular school, e.g. an isolated school in the mountains or on an isolated island, while others could be appropriate and feasible in a concrete context, e.g. mentors when there are experienced and newly qualified teachers.
The description of supportive roles in a particular country could probably facilitate the planning of their official training, in those cases that there are highly demanding roles or where these roles are formally rather unknown in
school practices, as in the case of mentors for newly qualified teachers in Greece. More extensive research is needed, with more empirical data and possibly with more supportive roles of school based professional development. Additionally, a more European or international context, including countries more developed in school based professional development, could further enrich this attempt.

6. CONCLUSIONS
Taking into account the previous discussion and Table 1, useful conclusions can be drawn if we focus on the development of these supportive roles in Greece as well as on the peculiarities of each role and of its framework. Such conclusions follow:

a. We underline that there are similarities and differences, as well as peculiarities amongst the selected supportive roles of professional development, within the four different frameworks in Greece after 1990s. These mainly derive from comparisons of bottom-up, small scale projects realized independently, to a certain extent, from official central educational policies. It has to be emphasized that, so far, the central educational policies in Greece do not seem to be sufficiently sensitive and influential regarding school based professional development and to its supportive roles.
b. More specifically, some of these roles are difficult to find, such as the facilitators in action research and the critical friends in school self-evaluation). This is possibly related to the high level of expertise needed and the possibility of very demanding training for these roles. For other roles, this is easier through guidance or short training, as in the case of the critical friend in action research or in the case of mentors for newly qualified teachers.
c. Although there are similarities in the difficult and crucial roles of the facilitator in the framework of action research and of the critical friend in the framework of school self-evaluation, the differences in the frameworks they support (the first one is a research framework of a group and the second one is a framework of self-evaluation of a school) make these roles discrete and different.
d. We note that the role of critical friend is encountered both in the framework of action research as well as in the framework of school self-evaluation. They have as common elements the distance and the neutral stance within these two frameworks. However, there are big differences concerning the role of critical friend in action research, where it is not so crucial, in comparison to the role of critical friend in school self-evaluation, where it is fundamental for its realization.
e. The role of tutor within the framework of fostering teacher leadership is, on the one hand, very demanding while, on the other hand, it is more directly involved in class work in order to encourage and facilitate teachers to take initiatives, and to reflect and organize them in structured and well-articulated ways. One of these ways is the portfolios of their professional development that they construct and reflect their progress in teacher leadership. It remains a very new role in the Greek context and has to be further elaborated in more schools.

f. The role of mentor for newly qualified teachers is a peculiar role within the framework of newly qualified teachers. Although widespread in certain countries, and not very much demanding for its formal realization, this role remains rare in Greece, although different informal forms of mentors can be found in many cases and there are already detailed discussions at the central official level, which could be taken advantage of.

In summary, we consider that the comparisons and analysis of a set of supportive roles for school based professional development could clarify their function and could also identify elements useful for its planning, realization, improvement both at the school level as well as in more official, central policies. However, the “golden intersection” of bottom-up or grass root approaches with top-down ones still remains something to be discovered for a more efficient use of the mentioned supportive roles.

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GEORGE BAGAKIS


Thai Rural Science Teachers’ Self-Perceptions about Efficacy, Confidence and Attitude toward STEM Education

Siroj Srisarakorn¹, and Chatree Faikhamta²

¹National Science and Technology Development Agency, Thailand
siroj.srisarakorn@nstda.or.th
²Kasetsart University, Thailand
chatreechem@yahoo.com

ABSTRACT
STEM (Science, Technology, Engineering and Mathematics) Education has been introduced and proposed as the new approach for enhancing the abilities of learners in twenty first century. Teachers are expected to effectively transfer in STEM teaching into classroom. In order to start the suitable and effective program to enhance teachers’ teaching STEM, as the preliminary study, this research investigated rural science teachers’ self-perceptions about efficacy, confidence in and attitude toward teaching STEM approach. Data from the questionnaires revealed that the more experience the teachers gained and the direct science teaching background they have, are positively related with efficacy, confidence in and attitude toward teaching STEM. Even teachers realized that STEM approach might be difficult to start, they have participant attention toward linking STEM approach instruction to learning standards. Suggestions for the further studies are discussed.

KEYWORDS: Self-perceptions in Teaching, STEM Education, Rural Science Teachers, Teaching Sciences

1. INTRODUCTION
The global trend of state investment for providing thoroughly public education is in high priority to link schooling with social and economic development (Baker and Holsinger, 1996). Teachers are the main factors in the successful of investment but, still, there is a big gap for rural teachers. For in-service science teachers in Thailand’s rural areas, if not include the novice teachers who has just graduated and worked, which there are plenty of them in elementary schools in countrywide, there are still the teachers with the high-experienced teaching in term of years but some of them have never been prepared to teach sciences in the modern instruction, they only know the traditional or didactic like “chalk and talk” approach. Some might have graduated from another fields of studying neither science nor science education but because of reasons, for example, their school had extended the level of classes without the addition of personnel in teaching so they need to teach science subjects in all elementary levels even though they have never been trained before. In this case, teachers
need to adapt themselves for this propose difficultly to teach in what they have never taught without both adroitness and experience. And it will be more trouble if teachers need to teach across the strands, for example, language teachers changed to teach sciences because lacking in-service teacher in rural educational service areas that is divergent with situation in urban schools (NSTDA, 2010).

To foster these teachers to adapt for these changes, enhance their abilities and efficacy in science teaching with modern styles, many government organizations shared their resources and budget for science teaching professional development to arm the up-to-date weapons for teachers and motivate their confidence in teaching. New policies, instruction of teaching science have been brought incessantly to support the development of students’ learning in Science, Technology and Innovation, for example, coming of STEM (Science, Technology, Engineering and Mathematic) education and its main objective in the future to distribute this approach to all schools in kingdom (IPST, 2015).

Decisively without question, this “big” change will affect to the overall picture of science education in Thailand. To reach for the accomplishment, apart from the strong and intensive supports from either educational or non-educational organizations, the main factor for success is “teacher” because they play the main role in classroom to foster students in deeply understanding of both content and process in sciences. Thus, the point of interesting is now shining to the preparation system of science teachers especially the group of teachers with less experience in STEM teaching, familiar with traditional approach because unless they can be the good leaders then it will be so difficult and the chance to enhance the learning for students in science will certainly decrease. This research is for seeking the information about their self-perceptions about efficacy, confidence and attitude toward STEM approach to prepare the high quality professional development in the further steps.

2. THEORETICAL FRAMEWORK

2.1. STEM Approach for Science Educational reform

STEM Education has been purposed to be a method to lead the citizen engaging in discussion and decision making on the 21st century problems such as pollutions, innovative science and technology that affect the human life in the future. A need to make sure that the informed citizen has fundamental skills and prompts is very important. (AAAS, 1993, 2007; Augustine, 2005; NAE, 2008; NRC, 2011; NSTA, 1990; Rutherford & Ahlgren, 1990). The importance of teaching by STEM approach since the early age and in the elementary level is raised since children will begin to develop their knowledge and perceptions about STEM during their elementary school period (NRC,
2007) and the earlier age could enhance more interesting in STEM subjects (NRC, 2011). And, exposing young students about the work of STEM careers and the related occupations is essential for increasing their interest (NRC, 2007, 2011). And without encouragement and prompting, students might naturally develop and hold misconceptions in STEM that leads to another problem later (Driver et al., 1996) but it could be solved if addressed earlier by teachers. In order to reach to the objectives, we required the well-prepared teachers who hold the knowledge of STEM concepts (Ginns and Watters, 1995), know both ‘what to teach’ and ‘how to teach’ by STEM approach so, supporting science teachers to develop their ability to teach STEM with quality is essential for science educational reform.

2.2. Preparation of Elementary School Teachers in STEM
For pre-service science teachers, due to STEM Education is just introduced to Thai science educational reform then the STEM teacher preparation in higher education institutes has just developed. Some curriculum has inserted STEM approach into the existing related subjects such as Scientific Inquiry and some have created the new subjects directly to STEM approach. For the in-service teachers, professional development in STEM is critical and essential for making sure that teachers are well-prepared to meet the STEM education needs of their students effectively. (IPST, 2015). The clearly point of view in the concept of STEM approach is really needed for the science teachers in order to adapt to the new method. Many teachers are intent to teach what they were taught (Llinares and Krainer, 2006) and in converse, teachers may not eagerly try to teach follow the idea of teaching STEM content due to lack of preparation to teach STEM (Skamp and Mueller, 2001). Thus, effective professional development program needs to provide enough clearly concepts and examples as from the report of Levitt in 2002 if we provide with useful models, teachers tend to be open to modifications in their teaching.

2.3. Perception in efficacy about STEM approach
Many variables are concerned with the efficacy of teachers in teaching STEM successfully including operational time, teachers’ level of enthusiasm and motivation. Efficacy beliefs are of particular importance for success within the STEM domains especially for elementary teaches. It may be concerned about the issue of knowledge and preparedness for STEM content (Woolfolk Hoy, & Hoy, 1998; Zeldin et al., 2008). Teachers with lower levels of efficacy for teaching STEM-related concepts held a greater number of misconceptions related to fundamental concepts (Schoon and Boone, 1998) and teachers may increase their efficacy by engagement in the suitable professional development (Ross and Bruce, 2007).
2.4. Perception in confidence about STEM approach
The factors influence confidence of teachers for teaching sciences in basic
educational level are their preparation program, teaching experiences and
continuous professional development (Jarrett, 1999). Teachers’ ability in
teaching STEM approach is influenced by their confidence for teaching and if
they have less confidence in what they are teaching, the negative result will be
reflected on student learning. (Ford, 2007). Teachers who hold higher
experience in STEM-related content could show the higher level of confidence
in teaching STEM. More than that, knowledge is another factor that positively
correlate with confidence, the more knowledge in content they have, the more
confidence they hold (Harlen and Holroyd, 1997). So, it could be said that to
provide additional STEM professional development is essential to enhance
teacher confidence in teaching STEM.

2.5. Perception in Attitudes Toward STEM
Teachers’ attitude is always transferred to the student learning so if they hold
the negative attitudes about STEM teaching, it could lead to poor attitudes
about STEM subjects and future careers and also teachers might have intension to avoid teaching in STEM approach (Deemer, 2004; Appleton,
2003). If the teachers have well-understood about engineering process design.
it could have a good opportunity for teachers to have the positive perspective
and attitude about STEM works. And in the process of professional
development, teachers should have a chance to expose to the work of engineers. (NAE, 2008).

2.6. Research Question
In the future, all rural science teachers must have the teaching ability in STEM
instruction. But in the present status, what are their self-perceptions in efficacy,
confidence and attitude that affect STEM instruction?

3. METHODOLOGY.
3.1. Participants
The group of 78 rural science teachers who participated in the project Science
in Rural Schools (SiRS) of National Science and Technology Development
Agency (NSTDA), Thailand. 27 are the group with science/technology/mathematics (STM) backgrounds and 51 are non-science
backgrounds with different years of experience in teaching; less experience (0-5
years) for 17, medium experience (6-10) and high experience (more than 10
years) for 36 teachers.
THAI RURAL SCIENCE TEACHERS’ SELF-PERCEPTIONS ABOUT Efficacy, Confidence and Attitude toward STEM education

3.2. Instruments
This study is conducted in quantitative research by questionnaire surveying. The instruments for accessing is divided into 3 parts. The part of self-efficacy adapted from the Science Teaching Efficacy Belief tool (Riggs, I.M., & Knoch, L.G., 1990). The Teaching Confidence (Woolfolk Hoy, A., 2000) is adapted for being the tool for access the self-confidence in teaching STEM and The Dimensions of Attitude Toward Science (DAS) (Van Aalderen-Smeets, S. and Walma van der Molen, J.H., 2013) is adapted to access the attitude toward STEM approach. These 3 instruments have based in science teaching, the researchers changed and improved them to be in the context of STEM approach. All used 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.3. Data analysis
Data has been collected and analysed by statistical analysis program (SPSS).

4. RESULTS.
The two factors we chose to compare between the groups of teachers are the knowledge background and the year-of-experience. The mean of the teachers’ self-perceptions in Efficacy, Confidence and Attitude toward STEM approach/teaching are shown in Table 1 and 2.

<table>
<thead>
<tr>
<th>Self-perceptions in STEM teaching</th>
<th>With (27)</th>
<th>Without (51)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science/Technology/Mathematics background</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficacy</td>
<td>3.56b</td>
<td>3.43a</td>
</tr>
<tr>
<td>Confidence</td>
<td>3.95</td>
<td>3.97</td>
</tr>
<tr>
<td>Attitude</td>
<td>3.89a</td>
<td>3.76b</td>
</tr>
</tbody>
</table>

Table 1: The mean scores of self-efficacy, self-confidence and self-attitude toward STEM teaching by the different groups of teachers with and without science/technology/mathematics (STM) background. The full scores are 5.
Numbers in parenthesis indicates the numbers of teachers.

Table 2: The mean scores of self-efficacy, self-confidence and self-attitude toward STEM teaching by years of teaching experience (less, medium and high). The full scores are 5.
Numbers in parenthesis indicates the numbers of teachers.

<table>
<thead>
<tr>
<th>Self-perceptions in STEM teaching</th>
<th>Years of teaching experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-5 (17)</td>
</tr>
<tr>
<td>Efficacy</td>
<td>3.47</td>
</tr>
<tr>
<td>Confidence</td>
<td>3.96</td>
</tr>
<tr>
<td>Attitude</td>
<td>4.00b</td>
</tr>
</tbody>
</table>

a,b indicates the difference with significant.
Consider about the knowledge background of teachers with and without the background of science/technology/mathematics (STM). For the self-confidence, two groups showed no different but for the efficacy the group of STM teachers showed the higher score than the group without STM background and the same trend for attitude toward STEM teaching. About the year-of-experience of teaching, we found that for the self-efficacy and self-confidence the three groups of less, medium and high experienced teacher showed no different around 3.5 and 4.0 respectively. But for attitude toward STEM teaching, the group of medium experienced teachers show the lower scores almost 3 but the low and high experienced teachers showed the score around 4.0.

5. IMPLICATIONS/DISCUSSION.

The efficacy in teaching is involved with the many factors and also the background knowledge of what teachers need to teach (Woolfolk Hoy, & Hoy, 1998; Zeldin et al., 2008). So, in case of the data of background, it showed that teachers with STM knowledge have their self-perception about the efficacy in teaching STEM higher than the group without STM background. But both of two groups also have high score around 3.5 from 5, so it could be concluded that rural teachers think that they could teach STEM lessons well. They think they understand how to reach to the success point of teaching STEM approach and quite ready to start to teach by STEM approach. For the attitude about STEM teaching, it is the same trend with efficacy, teachers with prior knowledge in STM have more positive attitude in STEM teaching than the group of teachers who has no background (Appleton, 2003). But for their self-confidence, it showed same level around 4.0. This might be because all group of teachers feel that they have known about STEM approach enough to feel convince about this approach that it will be the better way to teach students to be science literacy (NRC, 2011) and they could make sure that there will be enough teaching/learning media for them to be succeed in this approach (NSTDA, 2010).

For the factor of year-of-experience, their self-efficacy and self-confidence showed the same level at around 3.5 and 4.0 respectively. Both showed the same tentative with knowledge background. The reason why the scores are at the same level for different groups, it could be that all teachers are in the long period of professional development program which this could make them feel that they have gained ability and confidence at the good level for teaching STEM approach. But for attitude toward STEM teaching, the groups of less and high experienced showed the scores higher (around 4.0) than the medium one (2.86). This might be because for the higher experienced teachers, they
have worked for many years and have experiences about STEM works so they showed the good attitude (Deemer, 2004). For the less experience teachers, they have been prepared for the new methods of teaching science in their preparation programs so they might have gain better positive attitude compares with the medium experienced who have not well-prepared nor have much experience enough.

6. CONCLUSIONS
Teachers’ self-perception about new approach of teaching like STEM is very important and it could be the key success of how to apply STEM approach to nationwide. For Thai rural teachers, it showed that knowledge background is important for teachers to feel that they have readiness to teach STEM approach, and the positive attitude to STEM teaching in classroom. And it could be concluded that with the higher experience and well-preparation, it could enhance the level of positive attitude for STEM teaching. In this case, the process of high quality professional development with well-aligned with teachers’ context could fulfil the gaps for all group and able to raise the teachers’ self-perceptions in efficacy, confidence and attitude toward STEM teaching (NAE, 2008).

6.1. Limitation
Due to the less number and specific group of participants, the data might not be well-generalized to all Thai rural science teachers but anyway, it could be the guideline for design of professional development program for these groups of teachers.

REFERENCES


THAI RURAL SCIENCE TEACHERS’ SELF-PERCEPTIONS ABOUT EFFICACY, CONFIDENCE AND ATTITUDE TOWARD STEM EDUCATION


Knowing the pre-service teachers’ beliefs in order to promote equity, inclusion and quality. Validation of a scale on teachers’ motivations (MTS)

Andrea Ciani¹, and Ira Vannini²

¹- Alma Mater University of Bologna, Italy
   andrea.ciani5@unibo.it
²- Alma Mater University of Bologna, Italy
   ira.vannini@unibo.it

ABSTRACT
This paper presents the preliminary results of a longitudinal survey on pre-service teachers from the University of Bologna and their beliefs in respect to school and teaching. In particular it covers their motivations for teaching, which have been analyzed and then a validated scale with three sub-dimensions has been created. The purpose of the entire survey is to explore the presence of democratic beliefs during pre-services and observe how they evolve during teacher education and what factors affect them. The validated motivational scale (MTS) has allowed us to analyze the hypothesis that the motivations of social and political teachers are related to democratic beliefs.

KEYWORDS: teacher motivation, democratic education, pre-service teachers, validation of scales, design of longitudinal survey.

1. INTRODUCTION
Within a correlational study (trends and panel survey) at the University of Bologna, multiple dimensions of the beliefs of Italian pre-service teachers (kindergarten and primary schools) have been studied in relation to democratic school ideals characterized by quality and equity of learning outcomes of students. The survey, presently in its trial phase, has allowed various scales to be developed relating to: motivations to teaching; beliefs about teacher professionalism, school functions, the collective practices of curriculum design and formative assessment, well as style of active and inclusive teaching.

In practices this short essay, we have only presented the motivational teacher scale is being presented as they were considered basic variables in our hypothesis, and will be checked of the survey.
2. THEORETICAL FRAMEWORK
The motivation to teaching is defined by Sinclair (2008) as an energy that attracts people to teach, to remain in the initial training and then in the teaching profession; it is also the force with which teachers engage in initial training and in the teaching profession. By saying that, teacher motivations may therefore be considered as an individual drive that leads to deciding: to teach, to remain and engage in the profession. Some authors (cfr. Dörnyei and Ushioda, 2001; 2011) have additionally identified intrinsic and extrinsic factors that influence motivation, both positively and negatively.

Therefore, in motivational studies, it is very important to distinguish between pre-service and in-service teachers. In the first case, the motivations are mainly related to previous life experiences and the decision to teach while in the second case the contextual factors (schools of teaching) promote or hinder the choice of continuing in the profession.

According to a debate referring, which was started in the 1960s (Han & Yin, 2016), specific areas of motivations have already been analysed and internationally shared, albeit with different nuances according to the national contexts (Fox, 1961; Alexander, Chant, & Cox, 1994; Kyriacou & Coulthard, 2000; Richardson & Watt, 2006; Sinclair, 2008; Sinclair et al., 2006; OECD, 2005; Watt et al.; 2012). The intrinsic motivation to teaching refers to: the pleasure of working with children, the desire to continue their education and spread knowledge, as well as wanting to play an important role in society. While those of extrinsic type are based on: salary, personal satisfaction and social prestige, professional growth and for some countries, such as Italy, the desire for job security and comfort.

In this perspective, a major study by Richardson and Watt (2006) on pre-service teachers in Australia, also highlighted the specific factors that had influenced their motivation to choose teaching as a profession. All of which are very complex aspects, where the intrinsic and extrinsic factors tend to correlate and to balance each other.

Research on in-service teachers in Italy (Cavalli, 1992; 2000; Cavalli, Argentin, 2010) also showed results consistent with international directions and highlighted the presence, among teachers, of a greater or lesser tendency to adhere to intrinsic and extrinsic motivations, mixing them with each other according to age, and geographical and cultural background.

A further element to be considered in the study on motivations, is their correlation with variables related to students. In particular, a positive relationship was found between intrinsic teachers’ motivation and the motivation to pupils’ learning (Bernaus & Gardner, 2008; Bernaus, Wilson, & Gardner, 2009). This could lead to even suggest the relationship between the motivation of teachers and student achievement: a very interesting hypothesis.
KNOWING THE PRE-SERVICE TEACHERS’ BELIEFS IN ORDER TO PROMOTE EQUITY, INCLUSION AND QUALITY. VALIDATION OF A SCALE ON TEACHERS’ MOTIVATIONS (MTS)

on which the international research directions are still very open (fascinating study by Save the Children, 2011).

2.1. Objectives and hypothesis

From this theoretical framework, it should be noted:
- the importance of studying in depth the pre-service teacher motivations, in order to monitor how they evolve during the initial training;
- the importance of observing how the intrinsic motivations arise and develop during the initial training;
- the importance of studying the relationship between intrinsic teachers’ motivation and their ideals of democratic school and professionalism.

If the intrinsic teachers’ motivation leads us to assume significant implications on the academic performance of students in terms of motivation (and perhaps learning), then we could go even further and assume that the intrinsic motivations are deeply related to democratic beliefs of the school.

For this purpose a scale for measuring the motivations of the pre-service teachers (kindergarten and primary school) in training at University of Bologna was assembled from previously validated scales in Italian research studies. (Gattullo et al. 1981; 1990; Vannini, Mantovani, 2007; Balduzzi, Vannini, 2008; Vannini, 2011). The Scale has been assembled on the basis of three dimensions: the extrinsic motivation (salary, secure employment, convenience, disengagement) and two intrinsic type motivations:
- the first, merely internal/vocational type; where the motivational drive is fuelled by the pleasure of working with children and aspects specifically related to the educational relationship;
- the second is strongly linked to teaching social function, seen as a service for the building of a more democratic society, more equal and inclusive.

In the scale design, the two intrinsic dimensions (although we imagined them as related to each other) have been deliberately kept separate, with the aim of being able to observe the presence (during the initial training) of the second intrinsic motivational scale (the teaching as social function).

Our hypothesis is that this social motivation is more consistent with democratic school political ideals (and not just individual inclusive educational practices). The analysis that are being presented intend to validate the entire motivational scale (with the three dimensions), in order to be able to later use it as a key variable to explain the democratic beliefs of the Italian pre-service teachers.
The research is a longitudinal survey and its aim is to make panel and trend analysis in order to explore (in a synchronic and diachronic way) the beliefs of Bologna University students (pre-service teachers) from the Primary Teacher Education Degree Course (PTE). In Italy, PTE is a degree course which allows one to teach in Primary schools and Kindergarten. The PTE degree is structured as a specific single curriculum (combining Bachelor and Master) regulated by the Ministerial Decree n. 249/2010 and it aims at promoting professionalism of teachers. It provides advanced theoretical and practical education in the subjects of psycho-pedagogy, teaching methodology, technology and research, which all concern the professional profile of a teacher. The aim of this survey is to monitor how, over time, the new Degree Course in PTE will be able to influence the progressive construction of democratic beliefs in the PTE students. More precisely, the beliefs oriented towards democratic school ideals which are considered as dependent variables, while attendance of the PTE course and some psychological and socio-political characteristics of the pre-service teachers are treated as a system of independent variables, of which analyze the correlations with the dependent variables, in the sense of both synchronic and diachronic. In fact, the researchers assume that the democratic beliefs of pre-service teachers as a complex product resulting from: knowledge and ability accumulated in socio-cultural background; motivations in choosing the PTE Degree and then the teaching profession; knowledge and ability matured during the PTE Degree; psychological characteristics and socio-political attitudes. In this paper we analyze a key variable: the motivation to teaching; In fact, according to our hypothesis, some specific motivational aspects are correlated (positively or negatively) with democratic beliefs of the pre-service teachers. In particular, we present the validation of the Motivations to Teaching Scale (MTS) in order to explore, in the future, how and how much the three dimensions (see later) of the MTS:
- are correlated with the beliefs democratically oriented;
- change over time, while attending the PTE Degree.

Data collection is done in the second, fourth and fifth year of the degree course: in this way it is possible to monitor changes over time.

The MTS consists of 17 items (item MOT6 has been rejected due to its ambiguous correlation with the sub-scales), each one proposes a specific teaching motivation and requires the subject to respond to a 4-degree scale of importance (from "no important" to "very much important") . MTS is contained within a broader questionnaire, which is the fundamental tool of the survey.

The tool of the survey is a questionnaire and it contains the variables presented above: democratic beliefs, motivations to teaching, psychological
characteristics, socio-political attitudes (additionally, educational background and employment situation). The questionnaire is loaded on a digital platform of the Educational Department of Bologna. All students of the PTE degree (300 students per academic year) have been included in the sample. To validate the MTS we decided to focus on the students enrolled in the second year of PTE in the academic year 2016-2017, and of these, 206 accepted to answer the questionnaire (the response rate was 69%). The characteristics of the respondent sample (shown below) adequately reflect the composition of the reference universe.

A large portion of the sample is represented by females, 93%. 68% of the students were born in Emilia Romagna (North Italy), while the rest come from various regions of northern and central Italy and a small number, 10%, from the south. The following is a comparison of the most frequent values: 17% of fathers are blue collar workers, 7% are office workers, 6% are teachers, and 6% are managers. The same thing happens with mothers but with a greater exploitation of intellectual professions: 13% are blue collar workers, 16% are teachers, 23% are office workers and 2% are managers. Furthermore, many of the pre-services come from a psychological or social sciences school (40%), but also from other types of secondary schools: 20% from secondary schools specializing in modern languages, classical studies and artistic education; scientific-technical 39% (which are secondary schools specializing in sciences, commercial and mechanical techniques) and vocational training 1%.

4. RESULTS
The descriptive analysis show that the intrinsic motivations (vocational and social) are considered particularly important compared to the extrinsic motivations (Tab.1) (Medium-high importance - sum of "fairly important" and "very important" and High importance - only "very important" percentage-).

<table>
<thead>
<tr>
<th>Variables related to Teachers’ Motivation</th>
<th>Variable Code</th>
<th>Rank of medium-high importance</th>
<th>Rank of high importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pleasure working with children</td>
<td>MOT1</td>
<td>100,0</td>
<td>90,3</td>
</tr>
<tr>
<td>Contributing to the development of good citizens</td>
<td>MOT2</td>
<td>99,0</td>
<td>86,9</td>
</tr>
<tr>
<td>Contributing to personal and social growth of students</td>
<td>MOT3</td>
<td>99,5</td>
<td>86,4</td>
</tr>
<tr>
<td>Helping children and</td>
<td>MOT4</td>
<td>98,1</td>
<td>70,4</td>
</tr>
</tbody>
</table>
supporting their families | MOT5 | 97,1 | 61,2 |
---|---|---|---|
Interest in working dynamically and open of innovation | MOT6 | 97,1 | 58,3 |
Playing a creative role | MOT7 | 96,7 | 61,7 |
Vocation for teaching | MOT8 | 96,6 | 68 |
Contribution to creating a democratic society | MOT9 | 96,1 | 76,2 |
Playing an important social role | MOT10 | 95,7 | 67,5 |
Chance to express personal skills | MOT11 | 90,3 | 46,1 |
Chance to satisfy cultural interests | MOT12 | 86,9 | 61,2 |
Desire to students and their families | MOT13 | 81,6 | 35 |
Chance of a job that allows time for family | MOT14 | 77,7 | 28,2 |
Chance of a job that allows time to pursue other interests | MOT15 | 77,6 | 38,8 |
Chance to follow the footsteps of positive educational role models from your life | MOT16 | 76,7 | 29,6 |
Chance for a job that allows economic independence | MOT17 | 21,4 | 3,4 |
Chance for a job that permits autonomy and does not require working too closely with colleagues | MOT18 | 14,1 | 3,4 |
Desire for a non-demanding job |

Table 1: Ranking of importance of pre-service teachers’ motivations

For all motivational items factor analysis was carried out where the value of KMO is > 0.7 and the value of the Bartlet test leads to rejection of the null hypothesis of absence of correlation between the variables (p-value > 0.05); then, we proceeded. Factorial analysis was conducted according to the Varimax
method. The percentage of covered variance is equal to 61% and the factors are suitably distinct from each other (For summary reasons, you can not enter the rotated matrix of the results).

Factor analysis revealed three main motivational factors. The first highlighted factor consists of 5 items and it can be named Extrinsic Motivation. Sub-scale built (Table 2) on the basis of this factor has produced a very good index of reliability (Cronbach's Alpha 0.766).

<table>
<thead>
<tr>
<th>Variables of Factor: Extrinsic Motivations</th>
<th>Correlation of Item with the Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chance of a job that allows time to pursue other interests</td>
<td>,615</td>
</tr>
<tr>
<td>Desire of a non-demanding job</td>
<td>,586</td>
</tr>
<tr>
<td>Chance of a job that allows time for family</td>
<td>,579</td>
</tr>
<tr>
<td>Chance for a job that permits autonomy and does not require working too closely with colleagues</td>
<td>480</td>
</tr>
<tr>
<td>Chance for a job that allows economic independence</td>
<td>,429</td>
</tr>
</tbody>
</table>

Table 2: Sub-scale Extrinsic Motivation – Cronbachs Alpha 0.766

The second highlighted factor consists of 7 items and it can be named Vocational Intrinsic Motivations. Sub-scale built (Table 3) on the basis of this factor has produced a good index of reliability (Cronbach's Alpha 0.639).

<table>
<thead>
<tr>
<th>Variables of Factor: Vocational Intrinsic Motivations</th>
<th>Correlation of Item with the Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desire to be a positive influence on students and their families</td>
<td>,446</td>
</tr>
<tr>
<td>Pleasure of working with children</td>
<td>,391</td>
</tr>
<tr>
<td>Chance to express your personal skills</td>
<td>,384</td>
</tr>
<tr>
<td>Vocation for teaching</td>
<td>,369</td>
</tr>
<tr>
<td>Chance to satisfy your cultural interests</td>
<td>,360</td>
</tr>
<tr>
<td>Chance to follow in the footsteps of positive educational role models from your life</td>
<td>,330</td>
</tr>
<tr>
<td>Helping children and supporting their families</td>
<td>,304</td>
</tr>
</tbody>
</table>

Table 3: Sub-scale Vocational Intrinsic Motivations – Cronbachs Alpha 0.639

The third highlighted factor consists of 5 items and it can be named Social Intrinsic Motivations. Sub-scale built (Table 4) on the basis of this factor has produced a good index of reliability (Cronbach's Alpha 0.685).
<table>
<thead>
<tr>
<th>Items of Factor: Social Intrinsic Motivations</th>
<th>Correlation of Item with the Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contribution to personal and social growth of students</td>
<td>0.668</td>
</tr>
<tr>
<td>Interest in working dynamically and open to innovation</td>
<td>0.664</td>
</tr>
<tr>
<td>Playing an important social role</td>
<td>0.641</td>
</tr>
<tr>
<td>Contribution to the development of good citizens</td>
<td>0.599</td>
</tr>
<tr>
<td>Contribution to create a democratic society</td>
<td>0.592</td>
</tr>
</tbody>
</table>

Table 4: Sub-scale Social Intrinsic Motivation – Cronbach’s Alpha 0.685

5. IMPLICATIONS AND DISCUSSION

Factor analysis returned three factors with different characteristics.

5.1. Extrinsic Motivation

Pre-service teachers that are driven by this motivation see the teaching profession as a chance to satisfy their interests and, above all, to have economic and material resources aimed to their own needs. In addition, there is the belief that the teaching profession can be carried out in an individual dimension, without investing additional time in the school community.

5.2. Vocational Intrinsic Motivation

Pre-service teachers that are driven by this motivation see the teaching profession as an opportunity for themselves, but also a challenge of making a positive contribution to the growth of students, and supporting them in their difficulties. In this case the motivation is overall a natural inclinations to act in a pro-social dimension. In fact, these teachers invest their own internal and cultural resources, because they feel pleasure in working with children. Their “mission" is an idealized vision of the teacher's role: for this reason they hope to leave their mark on the students’.

5.3. Social Intrinsic Motivation

The motivation related to teaching social function are driven by the belief that the school can be a real “gym of citizenship": a democratic society is built starting from the school. From this perspective, the teacher is motivated to act as the main trainer of future citizens and he/she looks at the school as a community where you build critical and democratic thinking. The reasons related to social motivation are therefore "political": the teacher has a key task for the future of the democratic society.
In our hypothesis, these visions could greatly influence the teacher democratic beliefs, about teaching, curriculum planning and the assessment in the classroom. The teaching practices should be fostered by the desire to develop basic skills and citizenship; through the use of formative assessment, in order to emancipate and empower all students.

6. CONCLUSIONS
Analysis carried out have led to validating a motivational scale MTS, with three sub-dimensions. The three sub-scales appear to be useful to proceed with the data analysis of the research and the verification of correlational hypotheses. In particular, the social sub-scale of MTS is particularly useful for exploring positive correlations with the democratic beliefs of teachers.

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Emancipatory teaching practices in the understandings of Social Sciences teachers on a Diploma of Education programme

Stephen Geofroy¹, Benignus Bitu², Dyann Barras³, Samuel Lochan⁴, Lennox McLeod⁵, Lystra Stephens-James⁶, and Antoinette Valentine Lewis⁷

¹The University of West Indies, St Augustine, Trinidad and Tobago
stephen.geofroy@sta.uwi.edu

²The University of West Indies, St Augustine, Trinidad and Tobago
benignus.bitu@sta.uwi.edu

³The University of West Indies, St Augustine, Trinidad and Tobago
diyann.barras@sta.uwi.edu

⁴The University of West Indies, St Augustine, Trinidad and Tobago
samuel.lochan@sta.uwi.edu

⁵The University of West Indies, St Augustine, Trinidad and Tobago
lennox.mcleod@sta.uwi.edu

⁶The University of West Indies, St Augustine, Trinidad and Tobago
lystra.stephen-james@sta.uwi.edu

⁷The University of West Indies, St Augustine, Trinidad and Tobago
antoinette.valentine-lewis@sta.uwi.edu

ABSTRACT
Developing a critical-reflective teacher-understanding of teaching practices is an essential element of teacher development on the in-service Diploma of Education programme for secondary school teachers at the University of the West Indies in Trinidad and Tobago. Teacher development involves engagement with key educational concepts and reflection on practice. Given the post-colonial context characterising the educational system in the West Indies, this research arose out of the need by Social Sciences teacher-educators to know whether their teachers had developed the kind of critical-reflective understandings that would enhance their classroom practice in an emancipatory fashion. This paper examines teachers’ understandings of their teaching practices to determine whether these understandings can be classified as emancipatory, given the existing post-colonial nature of the educational system. The study assists the Social Sciences teacher-educators to improve their approach to teacher professional development, a key aspect of which involves the process of teacher reflection whereby teachers interrogate theory, practice and context and integrate improved understandings into their profession in an emancipatory manner. In this qualitative case study, data on teacher-understandings were gathered from teacher-participants’ written teaching-
philosophy statements over the duration of the ten-month programme. Data reduction employed thematic analysis. Choice extracts were then presented and discussed in narrative form including observations and implications. Findings indicate that teacher-participants understand themselves as emancipatory agents, although their sense of self as part of a professional community needs to be strengthened. They also possess understandings of their subject-discipline and teaching practice as emancipatory.

KEYWORDS: Teacher-identity, emancipatory, critical-reflective, teacher-understandings.

1. INTRODUCTION

This research targets Social Sciences teachers (teacher-participants) on a ten-month in-service professional development Diploma in Education programme at the School of Education, St Augustine campus of the University of the West Indies, Trinidad and Tobago. Teacher-educators (researchers) examined the teaching philosophies of teacher-participants (specialists in History, Geography, Social Studies and Business Studies) during the academic year 2015-2016.

Teachers’ practice can either contribute to a reproduction of social inequalities (Tzanakis, 2011) or be an exercise of emancipatory agency (Freire, 1971). Social Sciences teacher-educators needed, therefore, to find out whether teacher-participants had developed critical-reflective understandings related to enhancement of their classroom practice in an emancipatory manner given the post-colonial context of schooling. The aim of the research therefore: to examine teachers’ understandings of their teaching practices to determine whether these can be classified as emancipatory. Findings would inform adjustments to the Social Sciences teacher-education curriculum.

2. THEORETICAL FRAMEWORK

In Trinidad and Tobago, the education system as vestige of colonialism is heavily exam-driven and competitive. CLR James (1963) captured the way the sociology of colour and class and the narrow nature of the colonial society shaped such a culture of schooling, teachers’ concept of success and teachers’ practices. At that time only two scholarships were offered (by way of examination) for a chance at secondary schooling: “There were...few other roads to independence for a black man...The elementary-school masters...sought bright boys to train for this examination, and to...win...was one of the marks of a good teacher (p. 31).

James (1963) also dealt with the subjugation underlying colonial education wherein: “the limitation on spirit, vision and self-respect...was imposed on us
by our masters, our curriculum, our code of morals...Britain was the source of all light and learning” (p. 39).

The exam-centered pedagogy of knowledge-transmission has grown despite education reforms since political independence in 1962. De Lisle (2012) traces the inequality of the examination process in selection of candidates for placement in secondary school illustrating how the colonial experience gave valorisation to the examination system and made change difficult. Discussing the ideas of Beckford (1972), Best (2000) and Freire (1971), Lavia (2012) explores the limiting nature of colonial education and the need for developing epistemic sovereignty. Such a progressive outcome requires recognising the rigid system in which schooling is organised and making concerted efforts toward positive change. Teacher-educators, by equipping teachers in their professional development programme with relevant understandings and related practices, contribute, in turn, to a reform of the system itself. In a context inimical to students’ best interests, Lavia argues for a critical-minded teacher able to subvert the legacy of education for certification. Professional development of teachers requires preparation for the work of decolonisation with teacher-graduates as change-agents. Reflective action toward emancipation is in keeping with the thought of Dewey (1997), Freire (1971) and Schon (1983). Zeichner and Liston (1987) explain that in this approach the basic assumptions about teaching and learning are considered problematic with the teacher becoming aware of the moral and ethical implications of choices made in the classroom. The teacher by an awakening of the assumptions and hidden inequalities of schooling and curriculum grows to accept a wider zone of responsibility and develops a competence for reflective action. The teacher must be willing to resist dominant discourses from a colonial past concerning class, ethnicity, gender, and ability. In this respect, the promotion of “equity” is a critical goal for justice in educational practice (Haq, 1995, p. 17). In an “emancipatory pedagogy”, “critical conscientization”, the establishment of a problem-posing education system” (Nouri & Sajjadi, 2014, p. 78-79), privileging learners’ active involvement in knowledge creation and targeting feelings and emotions (Lei, 2007) are key. In sum, the main aim of emancipatory pedagogy is humanisation (Freire, 1971).

Critical-reflective activity requires understandings about self and accepting responsibility for individual growth (Dewey, 1997). Beijaard, Meijer & Verloop (2004) and Ávalos (2010) discuss the nature of professional identity and what this entails as to resolving conflicts related to personal and institutional factors. Important also is pedagogical content knowledge where teachers interpret their subject matter to make it meaningful to students (Schulman, 1987). Ball,
Thames & Phelps (2008) state that pedagogical content knowledge is an “amalgam of knowledge of content and pedagogy” (p. 392). The understanding of teachers regarding their subject-discipline is critical since “research on teacher education indicates that the degree to which a teacher integrates new ideas and techniques in practice depends largely on the teacher’s interpretation of the value of these ideas and techniques” (Hughes, 2005). In this regard fostering student creativity is valuable for envisioning viable alternatives given the advances in information technologies. Fullam & Langworthy (2014) envisage that in teaching for creativity “the ultimate goal is interdependent learners who...make the most of the extraordinary world of information, ideas, creativity and connection that digital access opens up” (p. 78).

In order to challenge colonial pedagogy curricula can be crafted and interpreted to help children escape the trap of inferiorisation toward a cultural confidence from which to claim a space in the world (Best, 2000; Fanon 1963). Understanding the need for a community of support as a move away from the isolated “egg-crate” type work of the teacher (Lortie, 1975, p. 14) is necessary if the teacher is to confront individualistic pedagogy (Flinders, 1988; Mirel & Goldin, 2012) since confronting an established paradigm requires more than individualised effort. To a large extent, it is the school community that is best placed to devise “ways of teaching that respond to individual differences and...form the basis for a just and non-discriminatory society” (UNESCO, 2009, p. 8). Cochran-Smith and Lyte (1999) suggest the need for professional dialogue and the pooling of collective knowledge in communities of practice. Lieberman and Miller (2011) surveyed various studies of communities of practice and problematic aspects of forming and maintaining them. The power of these communities was highlighted due to the way they privilege theory and practice, encourage members to examine their own practice, try out new ideas, and reflect on what works and what does not.

Key components of a critical-reflective teacher-education process includes teachers’ understandings of: themselves (teacher identity); their subject-discipline; and what they do (their classroom practice). In sum, a critical-reflective understanding employs critique on praxis with emancipation as desired outcome (Critchley, 2001).

3. METHODOLOGY.

The methodology is a qualitative case study (Yin, 2009) of teachers’ understandings of their educational practice as expressed in their written statements of their philosophies of teaching. Key understandings of teacher-identity, the discipline taught and the way they thought about their practice
were derived through a thematic analysis approach entailing pre-coding (Boyatzis, 1998), coding and thematising. The coding process was done manually and collaboratively among the authors (Schreier, 2012) using the constant comparison approach (Fram, 2013). For rigor, coding ensued along with critical discussion and eventual consensus (Kvale & Brinkmann, 2009).

Of 53 Social Sciences teachers, permission was sought for the use of their philosophies. Of those teacher-participants who agreed, the process of data reduction resulted in the incorporation of extracts from 7 teachers whose teaching experience varied between 2 - 7 years, with Olivia the only exception of 12 years. For confidentiality, teacher-participants were given pseudonyms: Radica, John, Olivia, Bella, Elsa, Shiva and Theresa.

Research questions
1. In what ways do teachers’ understandings of themselves reflect their identity as emancipatory?
2. In what ways are teachers’ understandings of their subject-disciplines emancipatory?
3. In what ways do teachers understand their teaching practice as emancipatory activity?

4. RESULTS AND DISCUSSION
Results are discussed under the themes: teacher identity, subject-discipline and teaching practice.

4.1. Teacher identity

*Emancipatory agent*

Olivia (of 12 years’ experience) expresses the understanding of herself as “reflective practitioner” having “reconstructed” her teaching goals as “not merely cognitive but a complex set of embedded processes and practices that concern the whole person”. She grew in her understanding, away from an emphasis on the cognitive domain to holistic development. This critical-mindedness (Lavia, 2012) conveys the concept of herself as subversive of a one-sided cerebral colonial approach toward an agency that is developmental and emancipatory. Theresa (though a teacher of only 3 years’ experience) expressed a similar idea of her role as emancipatory in promoting critical thinking having experienced the Dip Ed. While before she “was adhering to the ‘jug…mug’ or ‘banking principle’ [Freire, 1971]” she, now “leans towards getting students to create and construct knowledge on their own, rather than pouring knowledge into them like empty vessels”.

Understanding oneself in community

To promote vicarious learning in community, the teaching practice component of the Dip Ed included Field Days whereby teacher-participants could learn from one another and develop a sense of themselves as part of a community of professional practitioners. We had noted that a serious concern raised by critics (Flinders, 1988; Mirel & Goldin, 2012) was the way in which teachers conduct their teaching in isolation from one another. John appreciated this teaching practice grounded in community experience: “The teaching practice sessions were tremendously helpful as I gained insights into different teaching techniques and methods to teach certain topics”. John valued the learnings he gained and the potential for enhancement of teacher agency in this community of practice (Cochran-Smith & Lyte, 1999; Lieberman and Miller, 2011). Understanding self in community for promoting professional growth is important for reform efforts, especially when working within an established colonial-style education system.

4.2. Teachers’ understandings of their subject-discipline as emancipatory

Interpretation of subject matter

According to Hughes (2005) teacher interpretation of the ideas in their discipline are critical for establishing relevance to students. Radica (a teacher at a school with a strong colonial tradition) hopes, through her subject-discipline, to foster appreciation for the region and a critical-reflective capacity to view the world from a Caribbean space: “Caribbean Studies [subject-discipline] requires sixth formers to think critically about the region they inhabit. The hope is to bring forth a future Caribbean society that has a wider understanding of and a greater appreciation for their region.”

Subject matter context

Resonating with the view of Ball, Thames & Phelps (2008), Bella displays a critical approach to pedagogical content knowledge where content is linked with context in a pedagogy suitable for meaningful learning in History: “As a History teacher...it is necessary to provide students with a reality outside the traditional classroom so they can visualise what is being taught and thereby be able to internalise it”. In the researchers’ view, the meaningful study of Caribbean history is essential for fostering Caribbean identity and a genuinely emancipatory pedagogy.

Teachers’ understandings of their teaching practice as emancipatory

Promoting equity

Elsa calls into question the well-established educational practice of streaming in the interest of greater equity and inclusion:
Streaming has, since colonial times been practised...to prevent academically stronger students from being held back by those less proficient in the classroom. I now see the flaw. In a homogenous classroom creativity can be stifled; whereas a heterogeneous group of students add styles, perspectives and shared experiences.

UNESCO (2009) supports her understanding and advocates for a more inclusive educational approach geared to the creation of a more “just and non-discriminatory society” (p.8). Another way education for equity has emerged is in Shiva’s statement in which he recognises the importance of using the language (creole-dialect) of his students in instruction: “Understanding now that speaking dialect can be encouraged, once students are made aware of the difference between Standard English and dialect”. The move away from the traditional colonial view of education that devalued use of the creole language in the classroom is an emancipatory one that promotes a much-needed cultural confidence (Best, 2000; Fanon 1963). In also recognising the value of Standard English, Shiva expresses an understanding that expanding students’ educational capability would also involve competency at Standard English- the official language of schooling.

Information technology, useful in pursuing student-centered approaches, has opened up avenues regarding teaching for creativity (Fullam & Langworthy, 2014). Elsa highlighted her awareness of technology’s creative possibilities in celebrating her new ability “to create websites and other digital spaces, power point presentations, photo stories and video clips”. The promotion of creativity is especially important when operating within an inflexible post-colonial education system with restricted possibilities.

Humanistic development
In pursuit of a humanistic and thus emancipatory approach to teaching (Freire, 1971), Bella expresses that her understanding of teaching has changed toward a practice that is learner-centered, with student engagement and attention to the affective domain (Lei, 2007). In her understanding “when relationships are formed in the classroom, it impacts and guides students outside of the classroom.”

Observations
Given Olivia’s twelve (12) years teaching within the post-colonial education system, it is noteworthy that she valued the learnings provided on the Dip Ed toward a whole-child approach highlighting quality of learning relationships and new pedagogical strategies. In addition, Radica sees the importance of her subject-discipline as a medium for creating a Caribbean identity, subverting the idea of inferiorisation and generating momentum towards building epistemological sovereignty for her Caribbean students.
Most teacher-participants (given their relatively short career and the established system within which they operate) have demonstrated that they do in fact perceive these understandings as having the potential to improve their overall practice in an emancipatory manner. Though John understood the value of self in community and valued learning along with his colleagues on teaching practice field days, overall, such understandings were limited among other teacher-participants. While efforts were made by the teacher-educators to foster a sense of a community of professionals, the shortfall could be due to the isolationist-type image of the teacher as professional inherited from the colonial era. Efforts toward fostering communities of practice thus face formidable resistance.

5. IMPLICATIONS

1. Given the valuable emancipatory understandings displayed among teacher-participants, the current Social Sciences teacher-education curriculum approach can be continued and consolidated.
2. Recognising the existing challenge involved in fostering an awareness of the value of belonging to a professional community of practice, elements for building such awareness need strengthening during the course of the programme.
3. Sustaining emancipatory self-understandings require institutional mechanisms at the level of the school system to provide support for teachers to guard against reversion to post-colonial teaching practices.

6. CONCLUSION

The findings do indicate that emancipatory understandings are apparent in teachers’ views. Understandings of teacher identity, subject-discipline and teaching practice show this clearly. A cause for further exploration consists in the area of professional community of practice.

REFERENCES


EMANCIPATORY TEACHING PRACTICES IN THE UNDERSTANDINGS OF SOCIAL SCIENCES TEACHERS ON A DIPLOMA OF EDUCATION PROGRAMME


History curriculum and national identity: a search on teaching practices in Southern Italian School

Loredana Perla¹, and Viviana Vinci²

¹University of Bari, Italy
loredana.perla@uniba.it
²University of Bari, Italy
viviana.vinci@uniba.it

ABSTRACT
The research ‘History and the School’ was started in 2013 within an Apulian network of six schools (Italy). The aim of research was to analyze the teacher mediation process and the curriculum design in the teaching of History. The ‘collaborative’ research-training mode built on the epistemological exchange between scholars and practitioners: Didactics, History researchers and History teachers. According to the framework of Analysis of Practices and in referement of the professional education, the methodological protocol was articulated in: analysis of the History textbooks; video analysis of a History case-lesson; triangulation of video analysis and explicitation interview; training workshops. The outcomes of the ‘collaborative’ research-training were the articulation of geo-historical expertise at the curriculum levels focusing on core content knowledge in History by format units. This confirmed the requirements about an autonomy articulation of the curriculum and a deconstruction of the textbooks content, by the teacher.

KEYWORDS: history curriculum, national identity, collaborative research, teachers’ training.

1. INTRODUCTION
The project History and school. Meanings and methods of teaching is an analysis of teaching practices of History in primary and secondary schools supported by the Faculty of Educational Sciences, Psychology & Communication, University of Bari Aldo Moro and the DidaSco (DidatticheScolastiche, School teaching) research project, in cooperation with the Apulian Regional School Office and the Labor school network.

The project involved History teachers working in six schools in Bari and its district (teachers involved in the research work in pre-schools, primary and secondary schools) and focused on the analysis of teaching practices of History. The project aimed at focusing on the central role of mediation processes (Damiano, 2013) in History teaching and on the curricular actions implied by these mediation processes of this discipline (Rüsen, 2012).
2. THEORETICAL FRAMEWORK

The research-training approach is collaborative (Perla, 2011; Desgagné, 1997), built on the epistemological exchange between the experiential universe of practical teacher (with own professional knowledge) and the theoretical universe of the researcher (with the knowledge of matter: in this case with three different competencies, namely that of the generalist teacher, that of the historian and that of the teaching of history).

The approach of collaborative research allows, through specific professional development devices (Maubant, Martineau, 2011), to work on the nexus training/operation of vocational service in unprecedented ways: researchers and teachers assume a posture of mutual learning which sees alternating theory and practice, knowledge and action, analysis and interpretation. The researcher is asked to support the effort with suitable mediators included the development of "implicit knowledge of the practical" (Perla, 2010): the one that each teacher develops in the course of his experience in the form of expertise of which - by virtue of his being "immersed in the action" - is not fully conscious.

The theoretical frame is the studies known as Teachers’ Thinking, born in the trail of research by Shulman (1987) and other authors that have studied in-deep scientific recognition of professional knowledge of teachers (Clark, Peterson, 1986; Day, Pope, Denicolo, 1990). These studies have shown the weight of pre-reflexive and knowledge embedded in teaching practical knowledge, that is, all the elements underlying the subjectivity of the teacher and guide professional practice: beliefs, implicit theories, intentions (Cabaroglu, Roberts, 2000).

According to the approach of collaborative research-training, in the research's group are involved an historian (as disciplinary expert) and an expert of teaching history as subject matter. The collaboration of two figures with different expertise - the historian and the didactic of history - allowed the study to deal, from different theoretical perspectives, with some central questions: why teaching history, what history teaching, what content to select, for what purposes, through what instruments of mediation and so.

The answer to these questions is not immediate: the emerged solicitations led the research-training team to deal with the polarization of the teaching of the historical discipline of two perspectives - the national-identity and the "world" or "global" history - subject of the international historiographical debate (Legris, 2014; Jolstad, Lunde, 2000).

The first perspective - the national history - lays a cultural-identity canon at the foundation of the of history teaching (Western, National, Regional i.e.). This frame has the advantage of being able to constantly bring the discussion to a close enough reference table to the experience of students, to be able to
connect to it the events of which we speak. As Galli della Loggia, "we do not study history to understand 'the development of society' but we study history to understand who we are, to know why we are what we are, of which elements comprises our identity" (2015, p. 75). We deal in the history of a part the world, our own, and not of all the lands of the planet, because it is this story that formed us. In this there is no expression of antagonism between "us" and "other" or "supremacy", but simply the acknowledgment of difference. And the story is based on differences, so the difference is one of the key categories for the construction of the curriculum of History. The second perspective - "transnational", known as "world or global history" - starts from the conviction that the globalized world requires a History capable of rebuilding synchronously the story of displaced persons in various parts of the planet and belonging to different cultures, ethnicities, religions (Vanhaute 2013). Both perspectives are focused on a multi-scale vision of the past: what changes is the starting point (world, Europe / Mediterranean, Italian, local entities) and use a plural mediation (from the lesson, to play, to technology, to the landscape intended as territorial laboratory). This mediation requires to be handled by a versatile professional figure, able whether to hold a lecture, or to facilitate a debate, or to animate a game or a historical laboratory (Brusa, 1991). The dialogue between different theoretical perspectives allowed the critical problematisation of the processes that underlie the teaching of history and fostered the team's reflection in the structuring of the research-training protocol.

3. METHODOLOGY

The methodological protocol has been articulated according to the practical analysis framework (Altet, Vinatier, 2008; Maubant, Martineau 2011) and the vocational education (Pastré, 2011). This research-training project had several aims. Here are the most relevant ones: to explain teachers' implicit knowledge, beliefs and representations dealing with the process of History teaching and learning; to make teachers aware of the reasons of the choices guided by textbooks; to deduce some elements that could build a vertical curriculum to be used in the primary education level and in Italian comprehensive schools; to implement a professionalisation process that can be used in the primary education level. The project implies a three-year duration. The methodological protocol considers some specific actions to be carried out each year. In the first year (2013-14) the protocol is split in four stages.
In the first stage, a co-analysis of textbooks has been carried out. The research achieved a deep analysis of the textbooks used by the teachers involved in the project. In the second stage, a videorecording of a History class has been carried out (Goldman, et al. 2007; Seidel, Stürmer 2014; Perla, Schiavone, Amati, 2014; Perla, Schiavone, 2017). Then, the video was edited and uploaded on a dedicated platform. In the third stage a triangular video-analysis between researchers and teachers has been carried out. In this stage teachers watched the video and filled in an analysis form, a self-assessment tool created by this research group in order to make teachers independent in the different stages of the phenomenological description of the educational processes in school environments; then, after viewing the video an interview has been made (Vermersch, 1994). The aim of this stage was to allow teachers to describe and analyse the multi-dimensional nature of educational practices in school environments with researchers. In the final stage a CSSL test has been carried out.

In the second year (2014-2015) a training activity has been carried out. Here, educational and subject-specific contents have been introduced. The training activities planned for the second year have been articulated on "Present time laboratories" (focusing on cross-cutting and interdisciplinary themes, such as "sensitive issues" - distressing facts of the present - memories, etc.). These laboratories had a two-fold aim: promoting a critical reflection on the use of historical sources that could be used in History teaching contexts, and guiding teachers in the development of competence units by means of guidelines provided by the research group.

As for the analysis device is concerned, together with teachers involved in 6 schools, this device could lead to a systematic analysis of History teaching/learning processes in order to identify the most important features in process itself and to analyse them so that they could spark new knowledge that can be used in future contexts (Goldman, et al. 2007).

The video analysis device form called Mediazione & Storia (Mediation and History) was created in order to identify the mediation processes in History teaching and in the related education organisers.

In detail, the video-analysis form is made up of three sections to be filled before, during and after the analysis, respectively.

Section I: information about the teacher, the class to be recorded, the period of the analysis.

Section II: it includes the video-analysis checklist. The checklist is used to mark the frequency of the actions included in the list. It is made up of two parts:

A Teachers' actions - History teaching: 1a Space/Time classroom organisation; 1b Classroom structure; 2 Educational relation; 3 Mediation processes; 4 Educational inclusion;
B Students' actions - History learning: Area 5 Students' actions;
C - Historical discipline (analysis of discipline and methods): 6a Quality of proposed contents; 6b Originality of contents; 6c Adequacy of references to sources; 6d Argumentative development of discourse; 6e Narrative ability; 6f Opening to the interdisciplinary; 6g Engage current events; 6h References to the National Guidelines curriculum.
Each macro-area has been split into markers and description items of the actions to be observed.
Section III: here teachers' comments and any comment arisen during the analysis are included.
The textual corpus obtained by the transcription of the explanatory interviews was subjected to analysis using the NVivo software. The analysis has been carried out in two distinct phases: a first exploratory step analysis conducted on the whole text corpus through queries operations, a mode of exploration and visualization by means of graphs or diagrams according to precise selection criteria (Word Frequency, Word Cloud, Cluster Analysis); a second Qualitative Data Analysis phase of encoding of textual corpus of the individual interviews through identification of semantic Nodes.

4. RESULTS
Summarising the answers obtained from video-analysis, the results show that the adaptation of disciplinary contents to educational cognitive structures needs a deep reorganisation of knowledge-related structures.
Analysing the results dealing with the types of lessons carried out by the teachers involved, it should be noted that an explanation-based model is then mostly applied. Two results proved to be surprising. The first deals with the integration of technologies within History teaching: a very low ratio of teachers declared they ask students to "search on the Internet in order to complement the contents of the lesson with additional information". The second one deals with the organisational decisions adopted by teachers in the creation of the educational setting: though in the latest years some national and international research showed that group-based teaching methods proved to be useful as students foster the learning process with one another, the analysis showed that the most recurrent method is individual, thus reducing the possibility to create a common environment in which an active and collaborative learning process can be triggered.
The video analysis allowed to make visible the centrality of the processes mediators in the teaching of History, educate the observation skills, focus on areas of improvement.
The analysis of the manuals of History showed the need for a ‘curriculation’ work to gain the autonomy and the deconstruction of the driving function of the manual which, unfortunately, is too often assumed by History teachers as the only "steering" of the educational work.

From the analysis of interviews of explication it has emerged the centrality of some required lemmas in the Word Frequency Query (including, for example, "mediator"), analyzed in greater detail through the textual semantic coding via Semantic Nodes. From the encoding process the prevalence of iconic and symbolic mediators emerged, the first based on visual mediation, imaging, and the second on the conceptualization and abstraction, unlike active and analogical mediators: the analysis of the interviews found that in teaching history is still lacking the appeal to experience - direct or simulated - as a privileged mediator for the transposition of knowledge.

By adopting a social community methodology (CSSL), teachers could share articles and reviews, could launch a question & answer system and could upload non-structured educational contents (texts, slideshows, pdf files, pictures, videos) via iPaper.

The results of the second phase of training are about the ‘curriculation’ for geo-historical expertise and production of skill units using a team-designed, by the Didasco group, format, based on a matrix of the essential contents organization of historical knowledge to teach starting from the identification of the idea of antinomy (part-whole; centre-periphery; unity-division, etc.).

The research-training has identified, starting by the critical issues emerged in the data analysis, some areas of improvement underlying the processes of teaching - learning of history:

- Strengthening meta-cognition and critical reworking;
- Providing school knowledge with a reasonable value: the involvement in the process that allows knowledge to be developed;
- Regaining the narrative dimension of History teaching;
- Enabling competence-based teaching within History teaching;
- Supporting the relationship between shared knowledge and disciplinary epistemology; this relationship depends on the relationship between teachers and the discipline they teach (Develay, 1995; Martinand, 2001; Rézeau, 2004).

5. DEVELOPMENT PROSPECTS/CONCLUSIONS

Research conducted has shown a great interest by teachers to implement the teaching of history innovation practices through team-design of materials and educational resources, also to be designed and shared in common learning environments and then online. The new scenarios of the teaching of history can become the starting point from which to launch a major educational
renewal that starts with the design and promotion of innovative languages moving towards cooperation and multimedia.

There are two prospects of development of the trail. The first is the short master *Territory as a teaching resource for learning geostoria*, started in 2016 with the aim to make teachers able to exploit the territory’s resources into the curriculum planning. The innovation of the training proposal is *to make the territory in a classroom of history and geography*, in which to show signs of the history and ways to use them in class. It consists of 4 modules, each divided into:

1) *lectio* for the theoretical and epistemological study of the discipline;
2) *workshops* - focusing on different strategies and methods, characterized by the *method of research and discovery*, such as educational games, storytelling, reading of iconic signs on the territory, smart maps, short videos;
3) trips within the territory;
4) design and evaluation of a real task for learning Geo-history using the Didasco Unit expertise scheme.

The second perspective of the research development is a ‘multi-scale’ vertical curriculum design on Italian identity (Galli della Loggia, 1998) to be disseminated in schools.

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Global.


Narrative of experience from school physical education: the case of a Brazilian woman

Luciana Venâncio

Universidade Federal do Ceará – Instituto de Educação Física e Esportes
Campus de Fortaleza – Brazil
luciana_venancio@yahoo.com.br

ABSTRACT
The ways of narrating experiences lived from educational contexts have become a possibility to understand former students’ choices and positions in the contemporary world. The objective of this chapter is to discuss a narrative by one Brazilian woman and her experiences from school physical education lived as her own-time. We chose the narrative inquiry as method and allowed the participant to explain her emotions, perceptions and questions – related to her experience – to confront the world lived. Then, the research developed from the narrative based perspective, exploring the participant’s experience and her relationship to knowledge. The narrated experience do not describe the chronological time lived in the school in a linear way. Instead, it reveals one’s own-time lived in different realities that imply both positive and negative readings towards the school physical education curriculum throughout life. Narrative allows people to value life experience as it provides clues to recognize each one’s relationship to knowledge. It constitutes a way of weaving crucial elements of one’s own-time lived and the time lived by others while facing the challenges of the world. The choices and trajectories are singular, proper to each human being, and imply the unleashing of intentional actions. We argue that the lived experience narrated by the participant refers to a set of relationships to knowledge elaborated beyond the school curriculum but also within physical education.

KEYWORDS: relationship to knowledge, own-time lived, contemporary world, curriculum.

1. INTRODUCTION
The ways of narrating experiences lived from educational contexts have been constituted as possibilities to understand people, their choices and positions in the contemporary world. In this perspective, it is relevant to understand how people attribute meanings to their own lives. How they experience and share life moments – their own-times – in different places with other people, who are different from each other. The school is one of the places where human experiences happen. Varied relationships to school knowledge, teachers and classmates are unleashed and allow each one, throughout their lives, to re-signify and narrate in their own way the most important senses to be re-signified.
Since the beginning of the 21st century, Brazilian physical education has been pursuing clues to illuminate the paths traced by teachers and students from their own contexts (Okimura-Kerr et al., 2007; Venâncio & Betti, 2015). The purpose of this chapter is to present the narrative of a young Brazilian woman and her experiences within school physical education in her own-time. There is evidence from studies on life histories, especially on women, which raise interesting questions about time, experiences and relationships to knowledge (Hooks, 2016; Marrero, 2008). This refers to epistemological questions and singular methodological choices to deal with topics of contemporary relevance. In learning situations within physical education, it is common to devalue verbal language, that is, consider it as non-relevant. In common sense, “talking” does not refer to movement, but to mere instruction that must be obeyed by another person. From the narrated experience on the constitution of elements that characterize the situations lived by the students, we face the dialogicity to teach and learn. There is no hierarchy in language statements and in the ways of narrating the experiences, since they are incarnated in the body (embodied).

2. RELATIONSHIP TO KNOWLEDGE AND SCHOOL PHYSICAL EDUCATION

Charlot (2000) considers that for living in this world we must learn to establish relationships with it. The relationship to knowledge is the relation of a person to the world, to her/himself and to others. It is a world as space in which certain activities by each person are inscribed in time. There are three dimensions from the notion of the relationship to knowledge: identity, social and epistemic. Therefore, language as a way of narrating events needs to be investigated. From these three interdependent, non-linear dimensions, relationships become perennial. They have their own-time that cannot be measured in the terms of the limited pedagogical time provided in educational processes.

Kunz (2006) suggested that a didactic-pedagogical theory of school physical education should be reconciled with the conceptions of education. This is an attempt to question the limits perceived in physical education, related to the empirical possibilities of teaching the culture of movement. According to Kunz (2006), some researchers like Betti (1996) and Bracht (1989) realized this question very well. However, the discussion and the theoretical deepening between education and human emancipation were not properly related to the empirical field of school physical education. Neither do they worry about cyclical spirals that imply relationships to knowledge by students who have had successful school experiences (Venâncio & Betti, 2015).

The lack of association between these fields indicates that a better understanding of the theory is still needed. Then, it must be based on practice and narratives that reveal and value the experiences of teaching and learning in
physical education. Empirical research should drive a transformation through a theory of practice (Betti, 1996). To broaden the possibilities and the modes of empirical investigation, it refers to the narratives. The research based on narratives constitute a set of (auto)biographical studies in the area of education in Brazil, that arises in the 1990 decade. From this period, life histories as (auto)biographical method and narratives as educational inquiry – as well as a teacher education mo(ve)ment, both in initial and continuing education – have focussed on the teachers’ memories and life trajectories (Venâncio et al. 2016). Since then, we have seen a concentration of research that values the teaching trajectories. Our intention is to foster student narratives and bring them to the heart of the discussions, not excluding teachers. There are students who live in contexts of exclusion, but they bring together successful experiences related to knowledge from school, more specifically within physical education (Venâncio, 2014). For Josso (2002), the focus of biographical narratives is to “walk into oneself”. It connects to the different meanings that a person – agent of her/his own-time – constructs from her/his narratives with others. The narrative becomes a unique way of (self)critical reflection on experiences and lifelong learning.

3. METHODOLOGICAL PATH

Narrative research allows the participants to explicit their emotions, perceptions and questionings (Dominicé, 1990; Josso, 2006). The participant in this research is a Brazilian young woman who is a former student from a municipal public elementary school, located in the eastern end of the city of São Paulo (Brazil). The location is one of the regions with higher rates of socioeconomic inequalities (IBGE, 2010). The 22-year-old Black woman, higher education graduated, was asked to contribute with a narrative (Hooks, 2016; Larrosa, 2002) from her experience of knowing referred to physical education classes. The narrative was obtained during: two small focus group meetings (Barbour, 2009) and one explicitation interview (Vermersch, 2010) during 2014 (Venâncio, 2014).

The criterion for choosing the participant is because she was a former student of a physical education teacher-researcher, who is part of an autonomous and collaborative network of teachers (Sanches Neto, Ovens & Craig, 2015). The identity of the young woman has been preserved and we used the codename “Line” to refer her. Besides, Line wrote spontaneously two narratives regarding her experiences towards physical education, and shared them through social media without any request by the researcher. There is a virtual community in the facebook which is accessed by the researcher and several former students of her since 2011. The researcher and some former students also keep contact
through other social networks, such as *skype* and *whatsapp*. This communicative dynamics has been determinant in the process of choosing Line as participant and throughout this research. For this study, during 2015, Line has been asked to write about “What is the time?” in her perspective. Afterwards, during 2016, she was asked to rewrite her narrative from 2013.

4. RESULTS: SIX BRIEF EPISODES
The following results derive from excerpts of six mo(ve)ments – identified as episodes – from Line’s narratives of experience. Each episode has been intertwined with her memories within physical education. Firstly, Line explains the implications of learning within physical education. The participant emphasizes aspects of her own learning, which goes “beyond theoretical or practical classes”. She relates her learning to everyday life, to the differentiation between concepts and skills.

It implies much more than the learning acquired in theoretical or practical classes. It helps us to understand everyday aspects (like team work). It approaches in a different way the concepts of sport versus game (leisure), characterizing in a clear and objective way the real skills necessary for the respective practices. (Line)

Line also recognizes and positions herself in front of knowledge representations that characterize decisively the person who she became. At the same time, she positions physical education as a relevant area of knowledge for life. The sense is contrary to what is generally attributed to physical education, seen as a secondary area of body dominance. Then, secondly, the participant argues on the meaning of knowledge.

Knowledge in physical education is directly connected [...] with life. Because in life you live, you participate, you often face challenges, so if we relate learning and knowing in physical education, it's the experiences, the participations we had, the challenges, for me it's all that. (Line)

The participant identifies her capacity to take over as a being of knowledge. Line evokes the commitment she has to the very condition of learning. In this sense, in third place, she explains her own choices and identity related to knowledge.

Teacher, [...] you had the commitment of the classes. For example, for those who liked dance classes, I think in general what you have awakened in us [...] was the feeling that there is nothing that we cannot do, we just try, do you understand? (Line)

Learning and knowing for Line is an ongoing process that has not been exhausted in the past, at school time. She mobilizes it, in the present, puts her own resources into the mo(vi)ment, as the result of (inter)personal
relationships to knowledge. In fourth place, the participant points out to challenges to face the world.

Teacher, something else is that between “learning” and “knowing”, today what they charge us, I think of everyone here, is the repertoire. I think everyone, you come to a test, for example, the college entrance examination, like I did, you have to have a repertoire to pass, as I did. So this repertoire consists of learning and knowing. You learned the theories, the practices, the knowledge linked to your family references, your life experiences, to get you to create it, and from it is participating in tests. Both personal and interpersonal, I think this concludes what you call it “life experience” or “life repertoire” in general. (Line)

Line describes notions from the epistemological relationships to the world, to herself and to others. The same context allows her to face certain challenges in order to re-signify her own life and identity as a human being. Then, in fifth place, the participant details the assumption of her own identity.

We discussed and learned many things: to respect the different, the difficulties of girls and boys to learn some contents. And we were respected, that was important. I studied in a public school, I live in the outskirts and when I say that I learned those things in physical education, almost nobody believes. (Line)

The participant narrates two situations experienced with physical education, and her reflexive dialogues on how she faces the world critically. Line explains why she had discussed with a teacher who did not “bother to teach” and her perspective on equity. In this sense, and in sixth place, the participant reveals a certain notion of criticality.

I learned not to accept any teaching in physical education since I studied at [school where she studied from 2001 until 2008]. I learned not to accept anything [...]. I love to dance, to play handball and basketball, I learned that it is important the positions on the court to play better, everyone plays better when they know the positions. When I went to the other high school, there were people who did not know where to stay on the court, and the teacher did not bother to teach, they did not even know how to “hit” the ball! The teacher said we did not need to know the positions, it was just to play. One cannot play anything like that, no sport. I fought with the teacher. (Line)

The place that Line occupies into the world allows us to infer that the very notion of time – within her perspective – is a network of inter-connections from the human living. In this inter-relationship to the world, the participant ask questions and receives symbolic answers, that demand her constant commitment through organised and non-linear exchanges from living memories that she narrates on her living and on others’.
You tried to teach people in many ways, we had movies, videos, comics, drawings, besides the practice of course! Each one tried to understand her/his way. There was no standing still and not learning. So I guess I do not accept anything until today. Remember the discussion of the movie Billy Elliot, which we watched? One boy called the other one a [derogatory slang] because he liked the movie. It was a mess, the girls came over him. It had nothing to do, everyone can like anything, but you need to know why you like it. I liked it because I like to dance, and he may have liked because of boxing, the fight, I do not know [...]. Have you already taught us boxing by then? (Line)

5. IMPLICATIONS FROM THE EPISODES AS MO(V)EMENTS

These episodes narrated by the participant explain what is embodied in learning. Line’s explanation of the different situations provides details on how she elaborated her thought and argumentation about her experiences. Then, the emerging narrative motifs are available to learn more about relationships to knowledge and how the participant re-signifies experience as she narrates. Line’s narrative did not put her into a dead end spot, because she has brought to the surface new reconstructions of experiences of knowing.

The experience of each person, therefore, depends on a set of lived situations that, in some way, modify the person’s conduct towards her/himself and with the other. This relational situation requires a confrontation with the world in challenging circumstances. Dominicé (1990) places a very significant importance on the fact that teachers have possibilities of assuring students the freedom to structure their own narratives to take charge of their lives. The narrated experiences by Line did not describe the chronological time in a linear way, but in a proper time lived in different realities, with positive and negative readings from physical education throughout her life.

Narrative allowed the participant to value her experiences, as she recognized herself as a being of knowledge. There is a peculiarity of motives of assumption before the world. The choices and trajectories are singular, proper to each human being, and imply the triggering of intentional actions. Narrating one’s own achievements is empowering, as for the young Black woman in the case of the participant. It is a research path in order to transform spaces and institutions (Hooks, 2013).

Brazilian education had strong influence from hygienist, militaristic and sportivist tradition exerted on the stereotypes that characterized the masculine and the feminine. It forged – from the biological perspective – the type of behavior that was expected of a woman. We still find discourses in Brazilian physical education that disqualify women’s ability to adhere to certain bodily practices (Goellner, 2013). It is perceived that one’s own-time is in the present, re-signified by experience. As a secular being who is emancipated, through
relationships to people and in places, incarnated singularly from the memory, such as this young Black woman.

6. CONCLUSIONS
There are gaps that need to be filled in formal educational processes unleashed in contexts of social inequalities. In these contexts, especially in the Brazilian scenario, Black and poor women are left out of their own experiences and need to have their knowledge confronted and re-signified from positive re-readings. Narrating positive readings from the relationships to knowledge requires sharing with other people, on the one hand, how knowledge allows us to understand the social condition of origin. On the other hand, such condition reveals new ways of recognition as a being of rights and knowledge.

In this sense, systematized school knowledge within physical education allows a (self)critical notion and new elements for the theory of the relationship to knowledge: vivid situations, experiences, reflective thoughts and arguments. The narratives of experiences that explain the characteristics of people, places and times to describe what they mean throughout their lives contribute to the comprehension of the relationship to knowledge. It also implies gender issues (Charlot, 2013).

Narratives foster an uneasy education, which cannot be exhausted in the time-pedagogically available (at school) to learn. Such narrative motives teach transgression and place education as a concrete possibility of emancipatory and liberating practice (Freire, 1999; Hooks, 2013). The experiences narrated by the participant refer to knowledge elaborated in the present – not in the past or in a future that never arrives. We conclude that the life trajectory explained by people who studied at school can contribute to advance our understanding on such relationship to knowledge.

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NARRATIVE OF EXPERIENCE FROM SCHOOL PHYSICAL EDUCATION: 427
THE CASE OF A BRAZILIAN WOMAN


Teacher’s personal theories of knowledge development

Riaz Hussain¹, and Meher Rizvi²

¹Aga Khan University, Institute for Educational Development, Professional Development Centre, Chitral, Pakistan
riazhussain.hussain@aku.edu

²Aga Khan University, Institute for Educational Development, Karachi, Pakistan
meher.rizvi@aku.edu

ABSTRACT
There are several theories put forth by educational philosophers that have informed processes of curriculum development both at national and local levels. In other words, these theories provide with broader roadmaps for developing or fostering certain knowledge to be taught by teachers and learned by students. However, teachers depending on various factors including their knowledge, beliefs, and context tend to improvise practices in schools in order to meet the requirements of students for meaningful learning. Hence, teachers’ personal theories serve as powerful models for how teachers engage with what knowledge is to be created and learned by students in schools. Stemming from a larger research project of exploring engagement of secondary school teachers in curriculum planning and decision making, this paper discusses teachers’ philosophical thoughts and examines through an analysis of data collected from secondary schools in Chitral their thinking and actions as manifested through their curricular engagements for knowledge creation in schools. In doing so, we also describe / propose that teachers’ personal theories can effectively be used as conceptual frameworks / models to further enhancing teachers curricular engagements for developing knowledge in line with students’ needs for meaningful learning.

KEYWORDS: Teachers’ personal theories, knowledge development, Curriculum planning, Chitral.

1. INTRODUCTION
Carr and Kemmis (1986) suggest that “educational practitioners must already have some understanding of what they are doing and an elaborate, if not explicit, set of beliefs about why their practice makes sense, they must already possess some ‘theory’ that serves to explain and direct their conduct” (p. 111). Teacher personal theories, as suggested by McCutcheon (1992), “consist of set of beliefs, images, and constructs about such matters as what constitutes an educated person, the nature of knowledge, the society and psychology of student learning, motivation, and discipline” (p. 191). These set of beliefs, images, and constructs that guide teacher acts are the results of their personal and professional experiences of designing and implementing the curriculum for
knowledge creation through instruction (practice) (Verloop, Driel & Meijer, 2001; Cornett 1990).

Cornett (1990) studied a secondary level social studies teacher using classroom observations and interviewing techniques. She identified five personal practical theories of the participant teacher viewing herself as a professional and two sub-theories related to her view of subject matter that guided her curricular and classroom decision making. In the similar vein, Cornett, Yeotis, and Terwilliger (1990) studied a science teacher thinking mainly through classroom observations and formal and informal interviews with the participant. The study found seven personal practical theories that guided her practice. Connelly and Clandinin (1988) and Cornett (1990) suggested that teacher theorizing, once studied and understood, could be used as a basis for the improvement of practice. Therefore, the purpose of this paper is to present personal theories underpinning curricular activities of teachers extracted from data collected during our field work in late 2014.

2. METHODOLOGY

Naturalistic methods of semi-structured interviews, focus group discussions and observations were used to generate data (Lincoln & Guba, 1985) from four teachers and the principals of two case schools. These teachers had more than five years of teaching experience at secondary schools in Chitral district of Khyber Pakhtunkhwa, Pakistan. However, this paper narrates the story of Social Studies teacher alone.

2.1. Participant’s profile

As noted above, for this paper we have selected the story of a Social Studies teacher, Shakir (pseudonym), teaching in a high school in Chitral district. He is MA Political Science from Peshawar University and has taught Social Studies in different schools in Chitral for about six years including four years in the current school. His school has a purpose-built building having adequately equipped library and science laboratory. Though not fully functional, the school has a computer laboratory with some downloaded educational materials and DVDs. The school has a garden, a playground and a volleyball court. By local standards, the school is considered to be a quality school in the area. During the field work, Shakir was interviewed and observed while teaching in the classroom. In this paper we illustrate his story and examine his personal theories of knowledge development.
3. FINDINGS

3.1. Shakir’s Personal Theories

The following theories were distilled from the analysis of Shakir’s interviews: teacher is powerful; teacher needs to update his/her knowledge; students are active learners; students’ voice is important; and teaching is a purposeful activity. However, one of these theories *Teacher is powerful* is presented below for the purpose of this paper.

3.2. Teacher is powerful

The common understanding about teachers in Pakistan is that they are the mere implementers of textbooks (Bacchus, as cited in Rehmani, 2006; Hoodbhoy, 1998; GoP, 1998), the only curriculum material that reach schools. They are viewed as completely powerless because examinations system binds them to teach only prescribed textbooks in a particular way (Memon, 1996). However, Shakir’s interviews show a different picture. Though, he feels bound by the textbooks and examinations parameters, he feels powerful within the school and his classroom. His remarks such as “I cannot drop a syllabus item [SLO] but I can add to it”, “Sometimes, yeah, looking at the situation I slightly change objectives”, and “These [class activities] are my own creations” signify his authority over curricular matters in the school. In a post-observation interview, Shakir said:

Yeah, you are right that rote learning from notes will fulfil examination requirements but my objective is not to address exam needs only. I want my students open their minds and think critically. Trade, commerce and stuff that I took up in the class today are matters that students have to deal with in their future lives in one way or the other. I don’t think rote learning would help them when it comes to practical life matters (Post-Observation Interview, December 9, 2014).

His interviews suggest that, guided by his personal theories, he comes to the class with a bigger agenda; bigger than what curriculum documents intend to transmit to and examinations require of students. Thus he and his students engage in curriculum planning and decision making at school level to develop their own knowledge. Here are five excerpts from his interview to elaborate his engagement in knowledge development.

Excerpt 1:

There are other objectives of teaching as you know… let’s suppose I am teaching about political struggles of Jinnah [Jinnah, popularly known as Quid e Azam, was the founder of Pakistan]. While teaching this topic, I will highlight Jinnah’s some important qualities such as integrity, principle and hard work to convey some good
messages to the students in a hope that they may develop their own personalities in similar lines (Interview Translation, October 13, 2014).

Highlighting Jinnah’s qualities is not direct requirement of the objective given in the school syllabus and thus is not requirement of the board examination. However, instead of sticking to subject matter and thus to examination requirements only, Shakir’s curriculum goes beyond to enfold students’ personal and social lives by creating a knowledge of what these concepts mean for their personal and social spheres.

Excerpt 2:

...even if the board exam asks students, for example, to list down 14 points of the Quid, I will be a treacher not a teacher if I contented with students rote learning those 14 points. So I need to study different books or access various sources in order to understand those circumstances and to ensure that students, too, understand those circumstances that led Jinnah to forward his 14 points (Post-observation Teacher Interview, October 13, 2014).

It is clear from the excerpt that understanding of those particular circumstances that had led Jinnah to formulate his 14 points is the knowledge that Shakir wanted his students to develop. However, this knowledge is not readily available and can only be reached through reading different books, surfing the internet and other digital resources. Shakir views that different books provide different perspectives and it is up to the reader to develop an understanding of those historical events in those particular frames of references. “I encourage students”, he added, “to read different books and critically analyse them to reach a logical conclusion about not only this one [14 points of Jinnah] but any [other] event”.

Excerpt 3:

When we look at the written history of Pakistan and India, we see that…and now many people have written about it, such as K. K Aziz and others… that it has been written with a particular lens. Teaching this history is bound to develop citizens with hatred for others. For this reason, I think, both these countries have not developed relations that should be between two neighbouring countries. We must teach what reality is and in this way we may avoid enmities (Teacher Interview, October 13, 2014).

It implies that Shakir sensitises students about the fact that books and their content may be subjected to biasedness and also caution them from being carried away by them. It also shows that whatever the content of the textbooks, teacher can modify or totally change its intended message. By doing
so, teacher plans a different curriculum. It also shows how school leaders’ aim of education, as Shakir’s, transcends examination needs to reach bigger aims such as promoting good relationships between two neighbouring countries.

As noted, his interviews show him to be aware of biasness and distortions inserted into the content of Pakistan Studies and through his reading and sharing of different content materials with students he wants them to beware of indoctrination. For example, he showed an article written by Farhan Ahmad Shah, already shared with the students, published in the Daily Times in January 12, 2014 which talks about mutations brought into the history of the sub-continent (Shah, 2014). Hence, providing different perspectives to the students, he encourages them to develop critical thinking skills to analyse information and reach a logical conclusion.

Excerpt 4:

I [Shakir] focus on student learning and let my teaching methods follow. For example, as you [the interviewer] know it, to teach a learning objective that asked for students to be able to define cash crop farming, I tried to invite a guest speaker who had introduced cash crop farming of peas and tomatoes in his area (Teacher Interview, October 13, 2014).

Utilising his power / authority to choose methods of teaching, Shakir invited a guest speaker to talk on the topic of cash crops. It means that instead of asking students to memorise a definition of ‘cash crop’, as per requirement of the given objective in the syllabus, he tried to provide a broader perspective of the concept of cash crop farming through a particular mode of teaching and hence enabling students to define it for themselves. Shakir explained that he wanted students to fully grasp the idea in such a way that they should, if they wanted, initiate or inspire their elders to initiate cash crop farming in their own lands.

Excerpt 5:

Yes, often times I ask students for their views on my teaching methods. Usually they give good suggestions which I try to incorporate into my planning … (Teacher Interview, October 13, 2014).

Through inviting student feedback, Shakir empowers them and himself. Students are empowered in the sense that through providing their feedback they indirectly participate in the planning of curriculum and, for that matter, in the construction of knowledge. Hence, they are viewed as active learners rather than a passive recipient of information from the teacher. As such, as Erwin (2004) argued, by empowering students, Shakir actually empowers himself by
taking student feedback into account and enabling himself to address their needs.

4. SUMMARY
This paper presented one of Shakir’s personal theories distilled from his interviews and classroom observations conducted for a larger study to explore how he was engaged in curriculum planning and decision making at school level. Examining data, we arrived at Shakir’s personal theories which guided his curricular practices to develop knowledge in school. Shakir has no issue working within a broader national framework of curriculum. Within his school he feels a responsible authority who adapts national curriculum to develop knowledge befitting needs of his students which defines his theory Teacher is Powerful.

5. IMPLICATIONS/CONCLUSION
It should be clear that Shakir was not aware of or we did not discuss his theorization with him. We developed his personal theories by examining data collected through interviews and classroom observations conducted with him. While responding to the interview questions and explaining classroom practices, he had an opportunity to reflect on his notions of curriculum, its development and creation of knowledge in school. Guided by his theories, Shakir’s practices indicated that he was developer of curriculum and knowledge in his school. As suggested by Carr and Kemmis (1986), Shakir as an educational practitioner must have set of beliefs that guided his practices of curriculum planning and decision making. Such beliefs develop from experiences including his previous education, home environment and the like. With these beliefs when he joined teaching profession, he encountered with real school situation that he had to deal with. Combined with school ethos, these beliefs must have guided his practices. As Shakir’s interviews and classroom observations indicated, he functions as a curriculum planner within the broader outlines of the national recommendations and somewhat smaller framework of school boundaries. The limiting factors of his broader circle of actions are state policies and examination systems which permeate to and influence his practices within his smaller circle of actions. However, his view of students as active learners gives him power to manipulate the limiting forces in favour of students’ goals for meaningful learning. For this purpose he plans his lessons and implements them in the classroom. His planning and implementation of lesson is guided by his personal theories, though limiting factors including available time and resources still at play. The experiences of classroom teaching and student responses to his lesson provide him with the
opportunity to review his personal theories and reform them with students’ meaningful learning outcomes in focus. We suggest that further research is required to study and understand teacher personal theories which in turn provide them an opportunity to reflect on their thinking and practices and to further refine their theories of teaching for enhanced engagement in these processes.

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From fetishism to narcissism – The ideological appeal of the policies for higher education in Brazil.

Rosimê da Conceição Meguins

Universidade Federal do Pará
rosimeguins@uol.com.br

ABSTRACT
The attempt of apprehending the transformations imposed upon teaching as a result of the neoliberal logic applied to Brazilian higher education was conducted through case study involving the subjects responsible for their objectivation – teachers. Capitalism in its neoliberal phase affects education which requires investigation so that its specificities be identified. Such study focused upon the apprehension of the totality by the way of the particular. From that perspective, alienation, fetishism, and conscientization are Marxian categories relevant to support the central ideas of the study herein reported which was carried out with teachers-researchers working in a Graduate Program at the Federal University of Para. In order to reach this subjective dimension semi-directive interview was used, with the understanding that work is what integrates psychic life with cognitive life. The assumption, borrowed from the Marxian theory, advocates that consciousness is somehow determined by labor relations. Because educational actions have been uniformized and universalized as a hegemonic proposal, a sidetrack towards the subjects became inevitable. This allows for an access capable of reaching, through the subjective way of consciousness, the concrete terrain of daily social life as a means of material and intellectual production. Results reveal the contradiction present in this action. Fetishism finds its correlate within the psyche of the subjects, narcissism, which amplifies the analysis from a Freudian perspective, and evidence modes of resistance possible to be developed.

KEYWORDS: Policies for Higher Education, Neoliberalism, fetishism and narcissism in teaching.

1. INTRODUCTION
The apprehension of transformations imposed upon teachers’ work by the neoliberal logic applied to Brazilian higher education took place by the way of the subjects responsible by its objectivation, normalized in the quotidian practices teachers must develop. Objectivation through the action that may promote their assimilation, that is, the subjectivation. The reproduction of total social capital, as analyzed by Marx (2014), points out its nature with its economic cycles and successive crises, and shows that it does not conform to a standard model. In its present phase – neoliberal –, the capital reaches, affects education which requires research in order to identify features specific to it.
Our interest turned to the seizure of the totality by way of the particular. In this perspective, alienation, fetishism, and conscientization are Marxian categories deemed relevant, constructed from a case study carried out with teachers working in a graduate program (PPG), at the Federal University of Pará, in Brazil (UFPA).

2. THEORETICAL FRAMEWORK, AND METHODOLOGY
The object of this study, namely, the configuration of teachers’ subjectivity under the impact of neoliberal policies applied to their work in the graduate program mentioned above, in a qualitative approach, allows for inferences drawn from modifications that took place (or did not) in their actions. The universe under research, with limited amplitude and representation, configures a scope-specific study, without generalization purpose. The subjects are only ten teachers randomly chosen. Semi directive interviews, with variable length of 50 to 60 minutes, were thoroughly video recorded. Both the construction of categories and the analysis of data have no pretension to allow for either general or generalizable inferences. Our interest focused on particular manifestations with emphasis on singularities, with no intention as to elaborate typological constructions of subjectivity, although observed regularities have not been unconsidered. After its transcription, all the material was submitted to enunciation analysis (Bardin, 2013) in order to be organized into three categories: 1 – alienation; 2 – fetishism; and, 3 – conscientization.

3. DISCUSSION
3.1. Alienation

“Man had literally changed the face of Earth, and wherever we look to, one can say, we no longer stop seeing the human mark. But, at the same time, beside this moving enchantment in face of the human capability of “transforming the world and of transforming himself”, Marx had found also its terrible shadow: the perception that this same man, at this point of his analysis multiplied by the infinity of individuals, had also got lost in history, had “dehumanized” himself, had “denaturalized” himself; in one word, had “alienated” himself (from nature, from himself, and from his own creations). Alienation (that has, in Marx, the double sense of “estrangement” and loss of consciousness).” (Barros, 2011, p. 239).

The teaching work requires reflection, and therefore it may bring about a representation of subject supposedly opposite to the use of the category alienation. Nevertheless, Marx (1844) himself emphasized that “[…] the real estrangement of human life remains and is all the greater the more one is conscious of it as such." [Original text available at: https://www.marxists.org/archive/marx/works/1844/epm/3rd.htm]. Such
observation gives the dimension that the overcoming of such a condition can only be thought of in the total plan, both subjectively and objectively.

The subjects’ statements confirm such condition, and denounce the contradiction installed in each one’s inner self as one reflects about one’s work. The situation experienced causes conflict, and the manner to mitigate it is to maximize the ‘positive’ aspects and to minimize the ‘negative’ ones. Reality, nonetheless, remains unaltered.

So we continue to resist, we continue to make an article, to make a speech, manifesting. But, we have a it is not something that a commercial employee may not have, but we do have consciousness. practice that goes in a certain way, and to some extent, against this speech that we do: the issue of intensification and precariousness. (D3).

The impotence experienced results from the concrete situation to which they are subdued, within which totality-subjectivity constitute a unity. Only naïve thinking could suppose such situation could be obtained exclusively through the use of coercive measures. If this were so, we could also adopt strong attitudes of reaction against it. For this reason, Marx calls attention to the manipulation made from the subject's own needs. Human need and satisfaction cease to exist with the annulment of the physical and spiritual senses, since they are alienated, and, besides, for being replaced by the sense of having.

3.2. Fetishism

“Hence the magic of money. The merely atomistic conduct of men in their process of social production and, therefore, the reified figure of their own conditions of production, which is independent of their control and individual conscious action, is manifested initially in the fact that their products generally assume the commodity form. The enigma of the money fetish is, therefore, only the enigma of the commodity fetish, made visible and dazzling.” (Marx, 1988, p.73).

It is evident that in the study at hand, the merchandise that will be endowed with value will be the product resulting from the teaching work submitted to quantitative evaluation criteria. A total inversion of the criteria comes to assess efficiency and effectiveness from numbers to the detriment of quality.
being published in the scientific journal A, B, C or D, right? And these professors were in the list of the unproductive ones [laughs]. I remember that was the big landmark. This event, this fact mobilized USP a lot: students were outraged to see their brilliant teachers, who taught brilliantly, be considered unproductive. (D8).

Obtaining resources for research projects, scholarships, for both teachers and students, all of it is submitted to the productivity logic.

Because here’s what I see: I see that the system created a logic of internal dispute regarding productivity, do you understand? Thus, it is a very big vanity what one has. Because you start to cast yourself in the academic world, you start to... Just now I got an e-mail from a colleague of mine: ‘Ah, I am here, in Paris.’ The other is somewhere in London, another one came from Portugal. Today, all of it, today, the three e-mails. The one in Paris said: ‘Oh, I’m devastated because the people in the air companies are on strike’. Over there, in Paris. He was afraid he could not come back. Then, we started laughing. ‘Imagine, we’re dying of pity for you’. It’s just like that, you know? We get to see a lot of this; you manage to conquer spaces you couldn’t conquer before, you gain visibility, you gain projection... Now, what I see is something like this: the institutional atmosphere between colleagues is individualistic, it is one wanting to overthrow the other, it is one wanting to pass the leg in the other. You submit a project for funding; nobody knows; one only knows when the result comes out. (D4).

Constant pressure generates anxiety and anguish which one supports only resorting to mechanisms similar to those furthered by the commodity fetish. Products resulting from labor acquire a value that functions as bargaining chip in the 'academic market'. Although the value attributed to productivity grants do not correspond to the model of metamorphosis similar to that of money and merchandise, nor is it linked to the circulation of a product, a symbolic value is added to them. The extrinsic value assigned to projects and grants, as a standard value defined by regulatory agencies, may not correspond to the essence of the product, considering the amount of hours and energy expended to execute it or even the quality of the product. On the other hand, the intrinsic value attributed by whoever perform it not only meets the needs of the subject to recognize himself in the materiality obtained by his work, but also bestows upon him prestige, distinction and recognition in the academic environment. Effects sufficiently capable of channeling emotional content towards satisfaction, which functions as a discharge for the tension to which they are submitted, and at the same time capable of diverting the experience of anguish and suffering arising from the fact that the subjects are no longer determined by their individualities.

It is because you work too much to get it. Sometimes, we think like this: Gosh, three more years because the requirement is quite a lot for you to continue in the
FROM FETISHISM TO NARCISISM – THE IDEOLOGICAL APPEAL OF THE POLICIES FOR HIGHER EDUCATION IN BRAZIL.

doctorate. When you enter, you do not necessarily enter the Master's and Ph.D. However, for the doctorate you've got to have six products, as CAPES names it; and then, within the triennium, you've got to have a minimum of six products. And then, at this point, there comes another discussion, that is going on right now, namely the story of the self-intensification, which I disagree with, because those who support it say that CAPES requires only six [products] and that I come up with eight, nine; then, the problem is mine, because CAPES only demands six. However, to prepare eight or nine has something else: that is that you have to be always competing: for you to have a project funded you apply through an edict, and there is no money for everyone. So, even your project being approved on merit, your Curriculum Lattes will now be considered, so that the classification can be made, since there are two hundred applications and only 50 can be chosen. Of course, you will have to submit your Lattes, and you can't have six, because six, everybody has! Right? Thus, if you want your project to be funded – or else you won't have the means to carry out your project – you will have to go through this sacrifice, of producing beyond the required six, so that you can actually obtain something. For example: when you have the grant, with an allowance for you to present a paper overseas, or request a post-doctorate abroad, then, all these things you are requesting will be evaluated not only in merit, but also through your Lattes – it expresses values, exactly! So, this question there, about what is it that differentiates pleasure from pain, I think we end up in a process of deadening this suffering because it is constant. If you stay there all the time, you kind of abandon it, you enter a process therein – as so many colleagues entered – didn't they? – of depression, of falling sick, which is very serious, which is not a lesser thing. (D2).

Such is the possible reconciliation allowed by the fetish: an equivalent value for things that have contradictory properties.

Hence, this was strengthening me individually, professionally, engaging me politically – do you understand? That was not in my dimension. Thus, I didn't know this was going to happen to me – did I? And so, that was it! – I think time is passing. You, after your first research… Our research group has had four projects approved – all of them. In this way, every two years we have projects approved in CNPq, and now we have submitted the fifth. So you consolidate the group with the funding agency. Because of this I received, I think, the productivity scholarship. So, I mean, that fellow who started back there, without so much accumulation and experience, that is to say, the movement gave me the opportunity of being in an academic network – do you understand? Because in all these projects, the universities were present, the teachers were present; I was also getting involved with both the graduate program and the militancy within the movements. I mean, it was something that changed my life a great deal. In this way, I got a visibility I didn't have before – do you understand? Of course I know all of this is due to my effort, my engagement, my commitment. But I do it with pleasure. (D1).

To find satisfaction in either what would cause suffering or be obtained only through the fetish that reconciles two opposite situations: “So, our lives no longer
have a time. I feel it. Currently, I am feeling so tired that I feel like this, [...] it is a stress that I am feeling so deep, that I feel permanently anguished.” (D4). A feeling that soon gives place to the pride reached through the position occupied in the academic scene. “This was thus building a basis for recognition. Then, today, I have this space of national recognition. But even so, we are a few those who have it.” (D4).

The competition unleashed sets the dispute. The subject is impelled to break with his limits of time and space. Even with the limit of his human condition. “So it despairs me, it wears me out, it annoys me, but at the same time, no. It is the limit of your condition of humanity. You are not capable of doing so many thousand things like that.” (D2).

As an ideology, the neoliberal model feigns to supply the needs it created. Its inverting power, in Marx's words: "It is the fraternization of impossibilities; it makes contradictions embrace."

3.3. Conscientization

Freud (2010) observed, as he explained narcissism: “A strong selfishness protects against illness, but after all one has to start to love in order not to get sick, and it is inevitable to fall ill when, due to frustration, one can not love.” (p.29). In this way, he seeks to clarify a displacement that the subject makes by extracting from outer reality the libidinal energy present in each living being which is then transferred to its interior, as "the libidinal complement of the egoism of the instinct of self-preservation." (p.15).

We can understand this mechanism within which teachers are led to deviate from what causes them suffering in the performance of their work, replacing it by the satisfaction they invest in the self-constructed image. A condition that, while ideological, denies his/her affirmation as autonomous and free subject; but at the same time, he/she creates the conditions for this negation to be annulled, since the reality, although distorted in this false appearance, continues to exist and, for this very reason, to generate contradictions.

I think that the teaching work has a very important role, which is this way of undermining, of tiring, [...] that is exactly the reason why you do not have time to go to the union any more: 'Ah, there I go to this thing. I do not want to know, I do not have time any more. I'm going home to rest, I'm tired.' Or: 'Am I going to leave my house early for the assembly? I'm not going, I only teach at four o'clock in the afternoon.' So, that undermines our capacity for resilience and organization, exactly, doesn't it? And that is what they want. So, we need to be ... To continue ... I see that we have a privileged aspect, because we have the classroom. And it is in this classroom, in a bourgeois State and in a capitalist society, that we can speak things, and can form opinions. I think it is a space that we can't waste, just as it is the space of research, of the themes you choose, of the articles you publish. All these are forms of militancy, and you can’t waste them. (D2).
The resumption of the essence includes that our own humanity goes through the resumption of our history. Paths have been opened in this direction, which begins with the recognition of the ideological falsity. "We live this reality, this exacerbated rhythm. And I will say that it makes our relationships very perverse, because they start to be measured by something that does not exist." (D 7).

Maybe we are going through a moment of change. Other skills, other competencies are being required for this reality. Skills and abilities that may no longer be part of my generation. Hence my difficulty and the difficulty of this generation to be able to accept and enter this system very easily, without resistance… We complain a lot, but the confrontation we don’t manage to do it yet. Because the degree of competitiveness that has been implanted was so great that collective resistance to it is near to impossible, it vanishes. It is very little! (D 8).

The acknowledgment that the change necessary to implement the model of sociability imposed by neoliberal educational policies requires forms of adaptation, which are not easily assimilated, can already be considered as resistance.

But at the same time, it seems that the answer… And then the answer is something that we are not able to institute, this in the scope of the universities. The answers to be thought of in the process of overcoming this had to be given by all together, through an articulated action, in the sense of a solidary logic, without that fussiness. Not solidarity in the sense of knowing how to relate to the distinct object, and to think the potentialization of his work from this relationship with this other, who is your colleague, who is your student. I think we have not yet managed to create these mechanisms of integration, of articulated action. Then, to me, this is perverse, to the extent that one adheres… (D 1).

4. CONCLUSION

“Assume man to be man and his relationship to the world to be a human one: then you can exchange love only for love, trust for trust, etc. If you want to enjoy art, you must be an artistically cultivated person; if you want to exercise influence over other people, you must be a person with a stimulating and encouraging effect on other people. Every one of your relations to man and to nature must be a specific expression, corresponding to the object of your will, of your real individual life. If you love without evoking love in return – that is, if your loving as loving does not produce reciprocal love; if through a living expression of yourself as a loving person you do not make yourself a beloved one, then your love is impotent – a misfortune.”

[Original text available at: https://www.marxists.org/archive/marx/works/1844/manuscripts/power.htm].

The false identification of man with the objects, promoted by the system that dehumanizes and reifies man, also represents the overthrow of reason. The teachers, through their work, seek the realization of what is human in them.
The system appropriates this acting, which starts to be commanded in a heteronomous way, in order to remove their will. Such an abstraction is external, since its essence is not revealed in exteriorized actions. The autonomy of the subject, which knowledge can promote through reflection, is directed towards the affirmation and truth of his/her freedom. This possibility of real existence is potentially present in teachers and in education. The identification with what is human in this relationship is the answer they find to the question that is posed: the theoretical awareness that allows the understanding of being social in a mode of existence proper to its social activity.

REFERENCES


Secondary school teachers and their academic training: The opinion of its protagonists

Iria Calleja- Barcia¹, and Margarita Pino-Juste²

¹GIES-10 University of Vigo. Faculty of Education and Sports Science, Spain
iria@tresce.eu

²GIES-10 University of Vigo. Faculty of Education and Sports Science, Spain
mpino@uvigo.es

ABSTRACT
Portrayal of the training of teachers from their point of view, as protagonists of the teaching and mentoring action. This study was posed in the context of creating an assessing scale focused on secondary teachers to determine their knowledge and opinion about their teaching and mentoring tasks. It encompassed two phases; A qualitative one, where a focus group formed by secondary teachers, school counsellors and scholars, advised the researchers on the items and variables contained in the scale.
The second, a quantitative exploration, where the resulting Likert-type scale was tested through a 125 sample of secondary teachers extracted from private, charter and public schools from Spain.
Results show how although 48% of the sample have received 100 hours plus of continuous training in the last 6 years, and 37% of them received specific training on their mentoring role, less than 75% of the sample consider their mentoring actions at school as “good” or “very good” and less than 32% of teachers consider their counselling practices good or very good. However, 90% of the teachers polled consider the teaching of their subjects in the same positive categories. That is a significant difference to keep in mind while designing new training projects for secondary teachers, since both mentoring and counselling roles are an essential part of their assignments.
Other substantial variables such as the importance given by teachers to the cooperation between different education departments or their satisfaction with their mentoring role are studied as well.

KEYWORDS: teachers, tutors, guidance, training.

1. INTRODUCTION
Spanish legislation determines that the “tutor” is the teacher responsible for the teaching and mentoring of a group of pupils (Art. 60.1 Ley 1/1990 de Ordenación General del Sistema Educativo). It establishes as well that “The tutoring action and the counseling of the pupils is part of the teaching assignment.”
The tutor-teacher roles in Secondary school are gathered in the Real Decreto 83/1.996 on its art. 55 and on its art. 56, where it should be noted, among others:

b) To coordinate the evaluation process of the pupils in the class
d) To facilitate the pupil’s integration and encourage their participation in center activities
e) To guide and advise the pupils on their academic and professional activities
g) To guide the pupils demands and concerns
i) To inform parents, teachers and pupils in the group about all that concern them
j) To facilitate the educational cooperation between teachers and parents

2. THEORETICAL FRAMEWORK
Previous researches have described the teachers profile (U.S Government, 1993, OECD, 2014), compared the different tutoring tasks and the importance given to them by teachers (Xunta de Galicia, 2003; Cañas et al., 2005; Sobrado, 2007), have stated a relation between the school atmosphere and the tutoring action (Serrano, 2009), have focused on the negative consequences on the pupils’ group if the weekly mentoring hour is suppressed (Muñoz Hueso & Pastor Gil, 2015), emphasized the satisfaction of teachers as a powerful variable (OECD, 2014/15) and linked it to self-efficacy beliefs (Klassen & Chu, 2010; Stephanou et al., 2013; Gil Flores, 2016).

Researchers coincide on the importance of the mentoring role of teachers on the comprehensive development of their pupils (Davies, 2003), but have not focused on the continuous training and updating of teachers to put tutoring into practice.

It became necessary to elaborate a new assessing instrument, where the opinion on the following variables would be gathered: Initial and continuous training, (specifically on mentoring), personal and professional competences, importance given to guidance tasks, self-efficacy in assignments with pupils, families, and partners, satisfaction on teaching and guidance, as well as the sources of that satisfaction.

3. METHODOLOGY
Following Robinson (1993) in the pursuing of valid measures, accurate information, and cooperation of respondents, we developed a survey, through a 100 items Likert-type scale, with a 0 to 7 rank, where the levels of agreement were expressed as: 0: Total disagreement, 1 to 2: Disagreement, 3 to 4: Indifference, 5 to 6: Agreement and 7: Total agreement.
In the expressed satisfaction items, the procedure rank was: 0 to 1: Not satisfied, 2 to 3: Lightly satisfied, 4 to 5: Satisfied, and 6 to 7: Very satisfied.

A focus group of experts and practitioners from secondary school, was met to improve the content validity of the scale. Following the “10 Ss” model of Zikmund (1997), we pursued the spontaneity, speed, synergy, security, and specialization provided by such group discussions.

Their first advice was to be aware of about special cases where teachers do not practice the “tutoring” task, so it was decided to ask teachers if they execute their mentoring role and if they include guidance contents on specific subjects. It was suggested that 2 items that could generate response bias be re-written, as well as not to extend the assessing period longer than a six-year term to reduce artificiality.

After the expert’s review, the scale had 103 items, that were tested on 125 secondary teachers to check the usefulness of the scale. After the piloting, a reliability analysis was practiced, obtaining 0.95 Alpha, from which we can conclude the scale is not only valid, but internally consistent.

In the descriptive analysis of the profile of teachers, 61.3 % of women and 38.7% of men formed the sample, coinciding with previous research, although they pointed out a slightly higher proportion of women (Sobrado, 2007; Muñoz Hueso & Pastor Gil, 2015). Teachers were between 28 and 65 years old. The average age was 48 years old. 52.4% had more than 20 years of teaching experience, 21.8% of teachers with 11 to 20 and 14.5 % with 6 to 10 years. 6.5% had from 3 to 5. Only 4 % had less than 3 years of experience. 57.7% worked in public schools, 20% in private schools and 22.3% in charter schools. This is consistent with the OCDE data, where 78% of teachers worked in public schools (OCDE, 2014).

35 were 4 year-graduates, 98 5 year-graduates, 24 had specific masters and 6 held a PhD. Only 89 had specific initial training as teachers apart from the pedagogic contents of their grades. This is consistent with 91% of teachers with ISCED 5ª level found in the Spanish teaching population (OCDE, 2014).

4. RESULTS

47.6% of the teachers polled had received 100 hours plus of continuous training, 27.8% received from 60 to 100 hours, 15.1% received from 20 to 60 and 10.3% had received 20 or less and only 36.3% of them, received training about tutoring and learning guidance.
Table 1: Percentage of teachers who perform tutoring tasks the present school year

As can be seen in Table 1, not all the teachers interviewed have a student group assigned the present school year, so 21% are not performing any tutoring task and yet, 25% of them are not including any guidance content in the subjects they teach.

Table 2: Consideration of teachers on possessing the adequate training in tutoring tasks

In Table 2 teachers recognize possessing an inadequate training in half of cross-curricular topics and tasks listed. Forty-five of teachers are unaware of the European dimension on education, with a mode of 0. A low mode appears as well in the entrepreneurship promotion, sexual and affective education and addiction prevention.
In Table 3, on perceived self-efficacy, teachers consider their team work ability, promotion of coexistence, leadership and being open to change capabilities as fair, especially the first two ones, with a mode of 4. However, almost 90% of teachers considered they are efficient or very efficient in their taught subjects.

Table 3: Personal and professional competences of teachers

<table>
<thead>
<tr>
<th>Personal and professional competences</th>
<th>Mode</th>
<th>Average</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team work ability</td>
<td>5</td>
<td>4.93</td>
<td>1.19</td>
</tr>
<tr>
<td>Good class climate promotion</td>
<td>4</td>
<td>4.68</td>
<td>1.07</td>
</tr>
<tr>
<td>Empathy</td>
<td>5</td>
<td>5.12</td>
<td>1.07</td>
</tr>
<tr>
<td>Interest in the human dimension of students</td>
<td>7</td>
<td>5.80</td>
<td>1.06</td>
</tr>
<tr>
<td>Listening ability</td>
<td>5</td>
<td>5.20</td>
<td>1.02</td>
</tr>
<tr>
<td>Leadership capacity</td>
<td>4</td>
<td>4.27</td>
<td>1.55</td>
</tr>
<tr>
<td>Open to change</td>
<td>5.5</td>
<td>4.77</td>
<td>1.60</td>
</tr>
<tr>
<td>Disposition for self-evaluation</td>
<td>6</td>
<td>5.32</td>
<td>1.47</td>
</tr>
</tbody>
</table>

Table 4: Importance given by teachers to their guidance assignments

Table 4 shows how the tasks where teachers had a superior agreement were attention to comprehensive development, communication with families, evaluation and tracking of learning and encouragement of coexistence. The three of them were ranked as very important by 40% of teachers.

Table 4: Importance given by teachers to their guidance assignments

<table>
<thead>
<tr>
<th>Perceived importance of assignments</th>
<th>Mode</th>
<th>Average</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation of teaching values</td>
<td>7</td>
<td>5.00</td>
<td>1.72</td>
</tr>
<tr>
<td>Attention to comprehensive development</td>
<td>7</td>
<td>5.81</td>
<td>1.22</td>
</tr>
<tr>
<td>Academic and vocational guidance</td>
<td>5</td>
<td>5.11</td>
<td>1.40</td>
</tr>
<tr>
<td>Relation/ Communication with families</td>
<td>6</td>
<td>5.83</td>
<td>1.04</td>
</tr>
<tr>
<td>Evaluation/ tracking of learning</td>
<td>6</td>
<td>5.63</td>
<td>0.88</td>
</tr>
<tr>
<td>Coexistence promotion in the class</td>
<td>6</td>
<td>5.69</td>
<td>1.07</td>
</tr>
<tr>
<td>Teaching adequate study strategies</td>
<td>5</td>
<td>4.84</td>
<td>1.62</td>
</tr>
<tr>
<td>Participation/ leadership of Counselling Department</td>
<td>7</td>
<td>5.49</td>
<td>1.57</td>
</tr>
<tr>
<td>Personal relation with students</td>
<td>5</td>
<td>5.23</td>
<td>1.35</td>
</tr>
</tbody>
</table>

Table 4: Importance given by teachers to their guidance assignments

<table>
<thead>
<tr>
<th>Executed tutoring functions</th>
<th>Mode</th>
<th>Average</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of communication</td>
<td>5</td>
<td>4.60</td>
<td>1.19</td>
</tr>
<tr>
<td>Adoption of problem resolution strategies</td>
<td>4</td>
<td>4.35</td>
<td>1.23</td>
</tr>
<tr>
<td>Quality dynamization in the center</td>
<td>3</td>
<td>3.78</td>
<td>1.58</td>
</tr>
<tr>
<td>Vocational and academic orientation</td>
<td>4</td>
<td>3.83</td>
<td>1.44</td>
</tr>
<tr>
<td>Guardianship and defense of student’s rights</td>
<td>5</td>
<td>5.02</td>
<td>1.18</td>
</tr>
<tr>
<td>Taught subjects teaching and programming</td>
<td>6</td>
<td>5.51</td>
<td>1.04</td>
</tr>
</tbody>
</table>
We can see in Table 5 how teachers recognize that their research and continual improvement, dynamization of quality, problem resolution strategies, orientation, participation in the evaluation plans and team work are bad or at least fair, as can be observed in the modes.

<table>
<thead>
<tr>
<th>Satisfaction sources</th>
<th>Mode</th>
<th>Average</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social recognition of teaching</td>
<td>5</td>
<td>3,91</td>
<td>1,63</td>
</tr>
<tr>
<td>Treatment by the administration</td>
<td>3</td>
<td>3,07</td>
<td>1,78</td>
</tr>
<tr>
<td>Economic/ professional incentive of tutoring</td>
<td>3</td>
<td>2,98</td>
<td>1,57</td>
</tr>
<tr>
<td>Relation with families</td>
<td>4</td>
<td>3,93</td>
<td>1,55</td>
</tr>
<tr>
<td>Support from the board of directives</td>
<td>5</td>
<td>4,44</td>
<td>1,60</td>
</tr>
<tr>
<td>Relation with Counseling Department</td>
<td>2.5</td>
<td>4,00</td>
<td>1,87</td>
</tr>
<tr>
<td>Interpersonal relation with students</td>
<td>5</td>
<td>4,67</td>
<td>1,63</td>
</tr>
</tbody>
</table>

In Table 6 satisfaction levels with tutoring tasks are good (mode of 5), although the standard deviation shows an important number of dissatisfied teachers.

Sources of dissatisfaction in function of the lowest modes in Table 7 are the relation with the Counselling Department, the poor perceived incentives of tutoring, as well as the treatment received from government.
5. DISCUSSION

An interesting remark evinced was that, although the law statements, 27% of teachers interviewed don’t do tutoring work, and 26.7% of them don’t even include tutoring contents in their specific subjects. This was not seen in previous researches and although the centers dynamics explain it, it could, following Muñoz Hueso and Pastor Gil (2015) generate either personal or interpersonal conflicts between students, besides eliminating precious time to orientate pupils.

Most teachers consider all the guidance encompassed tasks as important or very important. This is coherent with previous research, such as the report of the European Commission “Schools for the 21 the century” (2008), where the Commission highlighted 54.7 % of schools and teachers who considered this area as very important, specially the learning to learn, independence and autonomy and social and civic competences. This is superior to their real performance, as it can be concluded by comparing the competences expressed in Table 3, where almost all obtained a mode of at last 5 (meaning “acquired”) and Table 5, where most functions obtained a mode below 5 (meaning that a majority of tutors don’t really perform the listed tasks).

About their perceived efficacy, almost 90% of teachers considered the teaching in their taught subjects as good or very good, which is consistent with TALIS report (OECD, 2014/2015) results and even with higher averages of self-efficacy (Gil Flores, 2016) but very few of them score their tutoring activity at that level.

This is consistent with Muñoz Hueso and Pastor Gil (2015) findings, where the importance of the tasks was also greater than their effective realization, as well as than the training to accomplish them. In fact, this reveals an evident gap in their capacitation, since initial training for secondary teachers in Spain assigns only 16 ECTS credits from the master degree to tutoring contents.

This situation, adhered to the low ratio of teachers who trained themselves in the last 6 years in tutoring and mentoring (only 37%) indicates an insufficient training frame for teachers, who consider having a very poor training in education in values, particularly clear in the case of European Dimension in Education, recommended by some Member States to be part of the academic contents since 1984 (Braga,1995).

The low results on the perceived training in the participation, writing and revision of school plans, dropout prevention and research and continual improvement is remarkable as well, since in previous research (Sobrado, 2007) they appeared as outstanding tasks.

Satisfaction levels found were high, since almost 72% of teachers reported being satisfied or very satisfied. This is consistent with previous research,
where on average, 93% of teachers reported being satisfied with their performance (OECD, 2014/15).

6. CONCLUSIONS
There is an inconsistency between the initial and continuous training of tutors and their real assignments. Therefore, prior aspects like the revision of school plans, vocational and academic orientation of students, education in values or school dropout prevention might not execute adequately because of a lack of training.

Either way, the satisfaction levels found in the tutor tasks are a predictor for optimistic future outlooks in the search for a more efficient training for tutors, by adjusting information and means to their real performance. Thus, the next steps in this research would cover a wider sample and a more descriptive impression of teachers about their specific needs in training contents to increase their perceived efficacy as tutors.

REFERENCES


SECONDARY SCHOOL TEACHERS AND THEIR ACADEMIC TRAINING: THE OPINION OF ITS PROTAGONISTS


Primary school teachers’ professional agency in the course of an in-service training programme

Merja Kauppinen¹, Johanna Kainulainen², Päivi Hökkä³, and Katja Vähäsantanen⁴

¹University of Jyväskylä, merja.a.kauppinen@jyu.fi
²University of Jyväskylä, johanna.kainulainen@jyu.fi
³University of Jyväskylä, paita.bokka@jyu.fi
⁴University of Jyväskylä, katja.vahasantanen@jyu.fi

ABSTRACT

Challenged by the current deficiencies of in-service training, this study focused on a training programme aimed at enabling lasting transformations in teachers’ professional lives by strengthening their professional agency. The understanding of professional agency was based on a subject-centred sociocultural approach addressing both the sociocultural conditions and professional backgrounds of teachers. The study investigated primary school teachers’ professional agency regarding their identity and work during one-year in-service education and the resources that supported the emergence of their agency. The results suggest that the acquisition of methods and models under which teachers can create pedagogical understanding does not guarantee a transfer to classroom practices. This depends greatly on the teacher’s professional agency and identity renegotiation, especially in situations where the school environment does not support this work. As a practical implication, this study highlights the need for continuous, practice-based scaffolding that supports teachers’ professional agency and identity renegotiation.

KEYWORDS: professional agency, identity, in-service training programme, narrative analysis

1. INTRODUCTION

This paper presents a study focused on Finnish primary school teachers’ professional agency regarding their identity and work during an in-service training programme. In recent years, teachers (including those in Finland) have faced many changes and requirements concerning their work, such as digitalization and technology-enhanced learning and teaching, new evaluation practices (assessment practices promoting learning), globalization and multiculturalism (García & Sylvan, 2011; National Core Curriculum for Basic Education, 2014).

Amid changing work conditions, teachers are required to engage in continuous professional development, including the constant renegotiation of their professional identity, which comprises their professional goals, interests and attitudes towards teaching and learning (e.g. Vähäsantanen, 2015). However,
the efficiency of in-service education has been modest in Finland due to difficulties in renewing teachers’ pedagogical practices because of the non-recurring nature of training. In addition, the lack of appropriate support for developing work practices or for renegotiating professional identity is an obstacle to successful in-service education. Furthermore, in-service education tends to benefit the same teachers, thus making little contribution to the wider work community (Heikkinen, Aho, & Korhonen, 2015).

Challenged by the current deficiencies in training, the present study focused on an in-service training programme that was aimed at enabling enduring transformations in teachers’ professional identities and lives by strengthening their agency at work. The aims of the study were to elaborate primary school teachers’ professional agency by answering the following questions: (i) What kind of agency regarding their professional identity and work do the teachers enact during in-service education? (ii) What kinds of (social and individual) resources support the emergence of agency among teachers?

2. THEORETICAL FRAMEWORK

In theoretical discussions, professional agency refers to acting intentionally, exercising control, making decisions and having an effect on one’s work, professional identity and work environment (Eteläpelto, Vähäsantanen, Hökkä, & Paloniemi, 2013; Stevenson & Gilliland, 2015). In this sense, professional agency is a pivotal condition not only for transforming teachers’ professional identity and work practices but also for school development (see also Toom, Pyhältö, & Rust, 2015). Similarly, Philpot and Oates (2016) have argued that the true renewal of work practices in school requires the renegotiation of the teacher’s professional identity. Professional agency in relation to professional identity can include different activities, such as taking a new direction in one’s career, strengthening one’s teaching philosophy, identifying new goals, developing confidence in linguistic or pedagogical skills, or accepting new notions of pedagogy (Ruohotie-Lyhty & Moate, 2016; Vähäsantanen, 2015).

Professional agency is mostly approached as relational and as manifested in, and supported by, teacher communities (e.g. Philpott & Oates, 2016). The understanding of professional agency in this study was based on a subject-centred sociocultural approach addressing both the subjects’ sociocultural conditions (e.g. school culture, social relations) and professional backgrounds, such as professional competencies, motives, and interests (Eteläpelto et al., 2013). This theoretical understanding is supported by recent empirical studies emphasizing professional agency as being enhanced particularly by opportunities to share one’s own narrative in a confidential atmosphere, by
being heard and by being a recognized member of one’s professional group (Hökkä, Vähäsantananen, & Mahlakaarto, 2017; Ruohotie-Lyhty & Moate, 2016).

3. METHODOLOGY

3.1. In-service training programme

The study was conducted in the context of a one-year in-service training programme aimed at facilitating the professional identity negotiations of participants by strengthening their agency, thereby allowing them to face current learning challenges at work. The programme was grounded in phenomenon-based learning, and it comprised the following five modules that were all founded on pedagogical bases including on-time peer- and self-reflection, practical and virtual support of peers and educators, and guided testing in each teacher’s class:

i. Phenomena of language, culture, and interaction
ii. Multimedia learning environments in primary school
iii. Multi-literacy now and in the future
iv. Towards participative writing skills
v. Skills and significance of speech communication and interaction

When the in-service training programme was implemented, the national basic education core curriculum reform was initiated in Finland. As a consequence of this reform, different themes (e.g. multi-literacy and cultural competence, diverse learning environments and thinking skills, and students’ agency and welfare) were stressed in the programme. Connected to this curriculum reform, the programme was aimed at supporting teachers’ agency to enable them to face pedagogical challenges co-operationally and critically analyse and transform pedagogical practices and the school culture as a whole. Although the programme concentrated on the instruction of L1 language (i.e. Finnish) and literature, the modules were implemented in the holistic view to the pedagogy (see Figure 1). It advocated the concept of practice-based and team-oriented learning: e-learning and face-to-face interaction were both applied to produce and share knowledge and experiences. The teachers were assigned to small groups so that they could have live contacts during the distance learning periods. These elements were aimed at scaffolding the practical and conceptual changes in the attitudes and views of the teachers (Borg, 2006). In this sense, the programme was intended to support the renegotiations of teachers’ professional identity.
3.2. Data collection and analysis
The study focused on a group of 33 primary school teachers (31 females, 2 male) who participated in the programme in 2015. They ranged in age from 23 to 54 years and their work experience in the field varied from 6 months to 24 years.

The data consisted of (i) motivation papers filled out before the programme \((n = 32)\), (ii) feedback questionnaires completed at the middle and at the end of the programme (altogether 64 questionnaires) and (iii) reflective diaries concerning different themes \((n = 32)\). In their motivation papers, the teachers were asked to explain why they were applying to the programme and the kinds of aims and contents they wanted to address. Using a 5-point response scale, the questionnaire included questions about the teachers’ learning in different areas and satisfaction with the educational practices of the programme. Accordingly, there were open-ended questions to determine the reasons for, and clarification of, answers. For the reflective diaries, each teacher created an individual OwnSpace on the programme website, which functioned as a personal learning environment for reflecting on their experiences and thoughts during the programme. Altogether, the data comprised approximately 600 pages of written material. Here, we did not use quantitative questionnaire data. The data was analysed via researcher triangulation in accordance with qualitative content analysis (Saldaña, 2013) and narrative analysis (e.g. Riessman, 2008). Before conducting the actual data analysis, we combined different research data (e.g. motivation papers, reflective texts) pertaining to
each teacher. Afterwards, the research material relating to each teacher were read, moving from case to case. Through a preliminary comparison to assess the teachers’ agency during the programme and the factors that seemed to be involved, it became clear that the teachers varied from each other. For the purposes of this paper, we selected two different cases (i.e. teachers) to discuss. Subsequently, we re-read the research material concerning both teachers and extracted the presentative data in terms of the research questions from the larger material. In both cases, we further synthesized the extracted data and created a coherent narrative with diachronic accounts of events and persons.

4. RESULTS
The analysis revealed two different narratives from the viewpoints of the primary teachers’ professional agency and its resources. Before describing these narratives, we want to emphasize that there were different paths in professional development of these teachers from the viewpoint of their agency. The teachers enacted professional agency in terms of strengthening or making a change in their professional identity and/or work practices during the in-service education. However, the phases of meaningful changes varied. Below, the narratives constructed describe various kinds of lines in the emergence of the teachers’ professional agency regarding their professional identity renegotiation and work practices.

4.1. Maria – a case of tensioned agency
Throughout the programme, Maria struggled with her teaching philosophy. She was willing to renew her teaching practices and her role as a teacher by participating in different in-service education programmes and taking responsibility for undertaking special tasks in her municipality and school (e.g. using ICT for pedagogical purposes). However, Maria’s ideas about the results of pedagogical renewal seemed to be higher and faster than in reality. Consequently, Maria became frustrated and exhausted.

Maria had a strong motivation to develop as a teacher. In this regard, she liked to make her own decisions and put them into practice alone. She preferred individual action to planning co-operatively or implementing her ideas with colleagues. Thus, she had struggled and debated with colleagues on numerous occasions. Further, she had been involved in several crises before and during the training programme. As an example of one particularly difficult experience, Maria reflected on teaching without textbooks and receiving considerable negative feedback from parents and colleagues as a result. This case was a consequence of critical observation of the textbooks in the training
programme. In fact, the in-service training programme had caused Maria to reconsider several issues and this ‘radicalized’ her attitudes, according to her. The peer groups in the training programme – including a small local group and the whole group of teachers – did not function as reflective groups for Maria’s professional growth. She liked educating her colleagues, but this interaction was one-sided. However, she recognized the valuable role of working in pairs in school during one classroom intervention. Maria had not been especially impressed with the pedagogical idea, but her colleague saw the deep learning possibilities in the pupils’ work, and Maria agreed afterwards. Maria experienced learning mostly during so-called long-lasting learning tasks, which were planned, acted, assessed, documented and reflected very carefully during the programme. Analysing the learning possibilities of pupils working with those tasks, Maria determined the reasons for, and results of, the pedagogical decisions. This helped her recognize her strengths in pedagogy.

4.2. Lisa – A case of goal-oriented agency
When she applied to the in-service training programme, Lisa had already had successful experiences of L1 and literature, and these had shaped her way of thinking about the subject and the relevance of its content. She had already developed a deep interest in the subject area and its contents and understood its importance, yet she wanted to reflect the subject in terms of her teaching. Thus, she wanted more ideas, knowledge and tools for developing her teaching practice.

At the beginning of the programme, Lisa already felt that she was gaining what she had been seeking, even though she was expecting the trainers to give her more tips and concrete feedback (perhaps to strengthen her own identity) midway into the programme. Nevertheless, she had already had experiences which had solidified her thinking about teaching, and the multidimensionality of the subjects became clearer to her. Lisa felt that the different kinds of groups in the programme – smaller teams and the large group of teachers and university students – had been meaningful for her learning and the other students and groups had given her support, advice and ideas.

Lisa did not have a permanent post during the programme, but this did not have a negative effect on her will to educate herself. She was only slightly worried about how she could try out the new ideas with children, since she did not have her own class or know the children she was teaching. However, her employment status meant that she did not feel the need to develop her work community during the training programme.

Lisa appreciated that the training had shaken up her thinking and actions, and how it had guided her to critical thinking. She also challenged herself to leave
her comfort zone. The training supported her in structuring her thinking and gave her the courage to justify her thoughts. She felt that the training had given her what she had come for.

4.3 Resources restricting and supporting teachers’ agency

For the sake of concise reporting, we present the resources that restricted and supported the teachers’ professional agency in Table 1.

<table>
<thead>
<tr>
<th>Tensioned agency (Maria)</th>
<th>Goal-oriented agency (Lisa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensioned agency emerged from several contrasts in practices and interactions:</td>
<td></td>
</tr>
<tr>
<td>• Strong pedagogical philosophy – This idealistic teaching philosophy was in conflict with reality, e.g. poor resources regarding ICT, and parents’ ideals</td>
<td>• Deep interest in, need and desire to learn about language and language pedagogy during the programme</td>
</tr>
<tr>
<td>• Individual work culture – No support in small groups during the programme or support from colleagues at school</td>
<td>• Slight frustration with educational solutions at the beginning of programme: a wish to have more tips and concrete feedback from the educators</td>
</tr>
<tr>
<td>• Recognized herself as a key person in changes via classroom interventions – Difficulty in selling her ideas to colleagues or parents, in reflecting her teaching practices and skills, and in committing to long-lasting development of the work</td>
<td>• Pupil-centred thinking including attention to diversity in pupils’ lifeworlds; a goal to teach language in a motivational way</td>
</tr>
<tr>
<td></td>
<td>• Motivating experiences of teaching language strengthened and solidified her thinking about teaching, and the multidimensionality of the subjects became clearer to her</td>
</tr>
<tr>
<td></td>
<td>• The programme shook up her thinking and actions, and her approach to critical thinking</td>
</tr>
<tr>
<td></td>
<td>• The programme supported her in structuring her thinking and gave her the courage to justify her thoughts</td>
</tr>
<tr>
<td></td>
<td>• She challenged herself to leave her comfort zone</td>
</tr>
<tr>
<td></td>
<td>• Groups (colleagues in training) gave her support, ideas and advice</td>
</tr>
<tr>
<td>The programme reduced some tensions; she learned to</td>
<td></td>
</tr>
<tr>
<td>• identify her competencies, make her skills visible, see the objects to develop</td>
<td></td>
</tr>
<tr>
<td>• combine the ideas of the curriculum with her teaching practices</td>
<td></td>
</tr>
<tr>
<td>• see support from other educators as valuable to her professional growth</td>
<td></td>
</tr>
<tr>
<td>• find suitable pedagogical solutions in her classroom</td>
<td></td>
</tr>
<tr>
<td>• develop her teaching practices gradually and in a reflective way</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Individual and social resources restricting and supporting the emergence of agency among teachers

5. IMPLICATIONS/DISCUSSION

The findings evince that the teachers’ professional agency was enacted in different ways in the course of their in-service training. They were active agents in the development and transformation of their professional identity and
practices. The teachers’ agency was also strengthened in different social networks within and outside the school environment. The pivotal resources in supporting their agency were a strong motivation to educate; a comprehensive programme incorporating current and innovatively presented themes; modelled, hands-on activities in the classroom; enduring a long period of professional development; and possibilities for before-and-after reflection with peers.

6. CONCLUSIONS

In conclusion, the results of this study suggest that the acquisition of methods and models which enable teachers to create pedagogical understanding does not guarantee the transfer of these methods and models to classroom practices (see also Cots, 2008). It depends significantly on the teacher’s professional agency and identity renegotiation, especially in situations where the school environment does not support this work. Thus, in regard to supporting teachers’ development of pedagogical practices, our study implies the need for creating structures and scaffolding for promoting professional agency.

Professional agency manifested as a complex phenomenon, while experiences, meetings with reference groups, and differences in school culture reshaped the teachers’ professional identity – that is, their conceptions, opinions, commitments and values – little by little. As the main agency-promoting structures in schools, this study highlights the processes (time, place, space) of continuous identity renegotiation, local collaboration within schools, collaboration within networks between schools, long-lasting reflection of oneself, authentic classroom interventions together with colleagues, the mode of ‘teachers as researchers of their own work’, and opportunities to question issues relating to implementing teaching practices in a reliable and emotionally supportive community. Furthermore, the study underlines the importance of continuous, practice-based development as part of the teacher’s everyday practices, instead of short-term in-service education, for sustainable professional learning.

REFERENCES


Teacher collaboration and professional development: findings from a case study

Maria Manuela Unas¹, Sandra Raquel Gonçalves Fernandes², Eusébio André Machado³, and Maria Assunção Flores⁴

¹Instituto Portucalense de Desenvolvimento Humano, INPP, Universidade Portucalense, Portugal
   ferrounas2@gmail.com;
²Instituto Portucalense de Desenvolvimento Humano, INPP, Universidade Portucalense, Portugal
   sandraf@upt.pt;
³Instituto Portucalense de Desenvolvimento Humano, INPP, Universidade Portucalense, Portugal
   eacm.estp@gmail.com;
⁴Centro de Investigação em Estudos da Criança, Universidade do Minho, Portugal
   aflores@ie.uminho.pt;

ABSTRACT
This paper is part of a broader international research project, which includes eight case studies carried out in public schools in Portugal and in Chile. It is a comparative study, which aims to understand the way teachers describe formal and informal opportunities for collaboration in their schools and its effect in terms of practical knowledge; to identify the enablers and inhibitors that influence professional collaborative learning at school; to understand the role of teacher evaluation and student academic results on teacher’s professional development; to analyse how teachers with different skills, experiences and schools view their own professional development. In this case study, a public school, located in the north of Portugal, with sixty years of history, was selected. The participants in the study are teachers from different disciplinary areas and teaching departments. The school includes elementary and secondary school level, with regular and professional study programmes. Data collection is based on questionnaires applied to teachers and interviews to the school director and to eight teachers, mainly coordinators of teaching departments. Data were collected between October and December 2016 and the results will be, at the moment, analysed and discussed according the qualitative data obtained through the interviews. Conclusions and implications for teacher collaboration and professional development will be discussed in the paper.

KEYWORDS: Professional learning, Collaborative learning, Formal and informal learning, Evaluation and results.
1. INTRODUCTION

Collaboration is a key challenge and opportunity for schools and teachers to improve their performance and contribute to their own professional learning and development.

Professional learning is understood as a process that can be individual or collective and which must consider the context of work (the school) and the practice of the teacher. It is a process that contributes to the development of professional skills of the teacher, through experiences, whether formal or informal. The professional learning is a continuous work that promotes the exercise of sharing, supported by peers, that is, favours the collaborative activity (Lopes & Silva, 2015). Flores, reports "about teacher training in Europe" held by the "Finnish Institute for Educational Research," says a "set of elements to be taken into account in the programs of initial and continuing training: knowledge of the discipline to teach, knowledge of pedagogy, cooperation and collaboration, integration of theory and practice, a system of self-assessment, mobility, dynamism and creativity, leadership and lifelong learning" (Flores, 2014).

Research suggests that collaboration is critical to teacher development and school improvement (Day, 2001). According to Forte (2009), the term collaboration does not have one single meaning, being associated with adjectives, which somehow try to qualify its meaning, as for example "structure", "authentic", and others. Lima (2002, p. 7) argues that collaboration has been understood as ‘the ideal way to ensure the professional development of teachers throughout their careers, the excellence of learning for students and the transformation of schools into authentic learning communities.’

Lima (2002) refers that the collaboration represents more than a mere cooperation and referring Hord, Lima stresses that "In collaboration, each individual participates with its share in a joint venture whose outcome benefits all those involved. Already in cooperation, participants who agree to work together can have goals and programs of action separate and autonomous programmes".

Other authors such as Hargreaves (1998) and Little (1990) understand collaboration as assuming different forms, such as collaborative planning, peer coaching, mentoring, collaborative action research, or even ranging from advice and consultation to shared decision-making. Collaboration differs from cooperation as the first suggests sharing the same goals and interests by all elements of a group, and the second simply refers to the combination of several activities carried out by a group. Another important variable influencing
teacher collaboration and professional development is the school culture and leadership (Flores et al. 2007). Collaborative cultures foster and build on qualities of openness, trust and support among teachers.

2. CONTEXT OF THE STUDY
A secondary school, with historical reference and over 60 years of existence, was selected for the case study in this research. It was the first industrial and commercial school in the region and it aims to be a reference in education/training, offering basic level education and a wide range of secondary level education (nighttime inclusive). The school receives students coming from different socio-economic and cultural backgrounds and it is designated as a TEIP school (Educational Territory with Priority Intervention), concerned with disabilities, combating absenteeism and social exclusion in early school. The school incorporates a multidisciplinary team, including a psychologist, a social worker, a coordinator of social and cultural activities, special education specialists, etc. It is the school with the highest number of students and teachers in the region: 1273 students (between the teaching daytime and nighttime); 173 teachers (day and night). For this study, only daytime teachers were considered.
In Portugal, schools are organized in mega-groups, according to recent changes in the Portuguese legislation. This organizational change introduced many challenges for teachers work, their pedagogical practices, collaboration with others, and their personal and professional development. Besides this "problem", the different policies or external regulations, produce a permanent conflict toward teachers’ identity and a stable culture of the profession. For these reasons, the context chosen for the study seemed relevant and enriching, considering the objectives of the international project and the impact of its results on the school analysed.
Besides this, the external evaluation report of the school calls attention for the importance of the development of collaborative practices amongst school teachers and departments. Therefore, the participation of this school in the international research project seemed to be an excellent opportunity to develop further steps in this direction.

3. METHODOLOGY
This study is part of a broader international research project aimed at developing a comparative analysis of eight case studies carried out in public schools in Portugal and in Chile. It is also part of a study within a Masters Dissertation at the University Portucalense, in Portugal, in the Educational Management and Administration programme.
The project presents the following objectives:

- To understand the way teachers describe formal and informal opportunities for collaboration in their schools and its effect in terms of practical knowledge.
- To identify the enablers and inhibitors that influence professional collaborative learning at school.
- To understand the role of teacher evaluation and student academic results on teacher’s professional development.
- To analyse how teachers with different skills, experiences and schools view their own professional development.

This study aims to analyse and discuss teacher collaboration and professional development based on findings from a case study of a public school, located in the north of Portugal. The following research questions were defined to orient the study:

- How important are formal and informal experiences of teachers for their practical knowledge?
- What are the facilitating and inhibiting features that contribute to the development of collaborative teacher work?
- What is the role of teacher evaluation and student results for teacher collaboration and professional development?
- What conditions contribute to teacher’s professional development and learning?

3.1. Data collection and analysis

The methodology of the study combines a qualitative and quantitative approach. It is based on the application of a questionnaire to teachers and a semi-structured interview to school leaders and teachers with coordination roles in the school. The predominantly qualitative nature of the study provides flexibility to the research design, since the emphasis is mainly on the process. The following table shows the different phases, participants and methods of data collection and analysis.

<table>
<thead>
<tr>
<th>Phases</th>
<th>Moment</th>
<th>Participants</th>
<th>Data collection</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Phase</td>
<td>October to December 2016</td>
<td>Elementary and secondary school teachers.</td>
<td>Questionnaire</td>
<td>Statistical analysis using the SPSS program. Content analysis of written comments by the participants.</td>
</tr>
</tbody>
</table>
For the purpose of this study, only qualitative data obtained from the interviews were analysed.

3.2. Participants
The participants in the study include teachers which belong to different disciplinary groups and, consequently, to different departments of education. Most of them are female teachers, with ages from between 40 and 59 years old. In terms of teaching years, the numbers are very variable: since zero years up to a maximum of 37 years of teaching service. In regard to their academic qualifications, the majority of teachers has a bachelor degree, 15 teachers have a Masters degree and one teacher has a PhD.

Ethical procedures were considered during the data collection. The research protocol was provided to the School Director, who authorized the development of the study in the school. Informed consent (to the director and teachers) and confidentiality of the data were assured at all research procedures.

4. PRELIMINARY RESULTS
In this paper, we will present some preliminary results from the data collection, which is still in progress at the moment. Findings presented will be based on the qualitative data from the school director, the teachers who have the role of coordinating departments and the coordinator of the internal school evaluation.

The preliminary results of the interviews reveal that there seems to be an alignment between the perspectives of the school director and the teacher coordinators in regard to their vision of the school. Some of the emerging categories are the concern with the success of students and families, the need to share teachers work and practices, internal and external evaluation, etc. The following quotes from the interviews to the department coordinators confirm this:

<table>
<thead>
<tr>
<th>2nd Phase</th>
<th>December to January 2017</th>
<th>School Director.</th>
<th>Semi-structured Interview</th>
<th>Content analysis of interview transcriptions.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Department Coordinators</td>
<td>Coordinator Internal Evaluation</td>
<td></td>
</tr>
<tr>
<td>3rd Phase</td>
<td>February to March 2017</td>
<td>Teachers that authorize the observation</td>
<td>Participant Observation</td>
<td>Content analysis of field notes and observations.</td>
</tr>
</tbody>
</table>

Table 1: Phases and methods of data collection
"There is a great concern with the education of students … it is a school that wants to build an identity, a new identity …"

"A very directed work toward the student and the student results!"

"... why are there students who do not follow the pace of learning in the class? Therefore, there are moments of reflection and these are always important. The school has to walk based on these ideas, shouldn´t it?"

"We try to update the knowledge, because we know that age is passing, but we must always be aware of recent events, …"

"The proper assessment of students is discussed very carefully, in detail, …."

The interview with the School Director also corroborated this vision of the school, focused on the student, his results but also his overall development:

"One of the strengths of the school, are the academic results… it is also, education for citizenship"

One important issue that emerged from the interviews was the attitude of younger teachers at the school and the differences between their level of commitment to the school mission compared to older teachers in the school. When referring to informal opportunities for collaboration, the younger teachers do not show much openness to work more than the times specified in the schedule. The coordinators refer to this as a difficulty that inhibits collaboration. Some of these quotes make this idea explicit:

"working by imposition, probably would, in some aspects, be a chance of improving, it would be like saying that it has to be that way because, otherwise, it is not resulting … . Not to create hatred, I think that it should be someone above us to do so."

"We have the collaboration within the possible …"

"Those who are less present in informal meetings, or because they are far from this school, or because there are not so linked to the school …".

"We think that sometimes there could be a greater exchange with those new teachers … The work is not so much in sharing, or with each other."
Collaborative work is considered important, but teachers insist that schools must reorganize themselves and take time for this purpose, during the teacher’s school hours.

"We define assessment criteria, correction of tests always together, when they are common, of course!"

"I enjoy working together with colleagues that practice the same teaching level, I share everything …"

Interview to the Coordinators

The informal opportunities appear to be important and fundamental for the professional development of teachers and for student outcomes.

“Therefore, these small meetings, will continue happening. Happening informally… Because we know that we have to give content, but we don’t define this in a meeting, in a formal meeting, which will be the texts that we will give."

"I report a lot by email."

"There are exchange of experiences and materials".

"A diversity of strategies will emerge from the knowledge that is shared and from what has resulted for some of us and others feel that sharing results will help us move on this attempt to be right or wrong…"

Interview to the Coordinators

The vision about the present and the future of teaching career seems to be a little less positive, when teachers were asked to define a metaphor that transmitted the future school.

"The school turns out to look like a kindergarten, students have very little autonomy". "The boys want to grow playing…"

"It is a gear that needs to be well oiled, to continue to operate in the future."

"I am a person who just knows very little. I am always trying to improve, …, my practice, …"

"A port without shelter, at the moment I am not feeling motivated for the teaching profession and I feel that things are going the wrong path, …"

"I want to continue thinking that we are still in some way, the sun that will illuminate these minds and these children, …"

Interview to the Coordinators
Everyone seems to agree that education needs to evolve and keep pace with technology. However, teachers admit that even they don't know how, bearing in mind that the traditional method is still very entrenched, either by legislation or by the individual thinking and learning performed in initial teacher training, considering the age of majority of participants.

"The students are very turned on for themselves, it is only computer science and the teachers, I don't know, we will have to change radically, but also I do not know how."

"... although we might be a little bit more replaceable, because students gather information on so many other places, we perhaps cannot be able to follow, …"  

Interview to the Coordinators

5. FINAL REMARKS

In this case study, the teachers point out the importance of collaborative work, but they also recognize that schools need a reorganization that includes time for this purpose, integrated on teacher’s schedule. Moreover, another factor that contributes for the development of collaborative work and professional learning by teachers are the informal opportunities which are fundamental for professional development and to improve student outcomes. These findings are in accordance with the study carried out by Forte and Flores (2014), about teacher collaboration and professional development in the workplace, referring to the problems and limitations situated at the organizational level, such as time and working conditions, the lack of training in collaboration, and issues such as motivation and personal difficulties. Also, teachers stress the importance of informal opportunities to work collaboratively at school, namely during the department meetings, although the younger teachers, with less years at the school, participate and reveal less commitment to their work. These and other results will be explored in greater depth and extent in future publications, where the quantitative results will be analysed and crossed with the data analysis from the interviews. The results of the comparative study of the eight case studies carried out, at a national and international level, will also be reported in future work.

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School leadership: results from a case study at a teacher training school in Benguela province

Marta Abelha\textsuperscript{1}, Justino Kayumbuka\textsuperscript{2}, Ana Silvia Albuquerque\textsuperscript{3}, and Eusébio André Machado\textsuperscript{4}

\textsuperscript{1}Instituto Portucalense de Desenvolvimento Humano, INPP, Universidade Portucalense, Portugal
mabelha@upt.pt

\textsuperscript{2}Escola de Formação de Professores do Futuro, Benguela, Angola
jkayumbuka@yahoo.com.br

\textsuperscript{3}Instituto Portucalense de Desenvolvimento Humano, INPP, Universidade Portucalense, Portugal
anan@upt.pt

\textsuperscript{4}Instituto Portucalense de Desenvolvimento Humano, INPP, Universidade Portucalense, Portugal
eusebio@upt.pt

ABSTRACT
In the present study, the research problem lies in school leaders’ context, particularly in how teachers at a teacher’s training school in Benguela province perceives the leadership of the school principal.
To answer the research problem were defined three objectives: i) characterize how teachers of the training school for teachers in Benguela province perceive the leadership led by the school principal; ii) understand the influence of the school principal in the teaching work dynamics iii) develop knowledge about the style of leadership developed in the training school for teachers in Benguela province.
The adopted research methodology assumed predominantly a qualitative nature, and case study was the chosen research strategy. The empirical study took place in the academic year 2014 in a teacher training school in Benguela province.
The main data collection technique was the MLQ questionnaire of Avolio & Bass (2004) applied to all the teachers (n=20). A simple statistical analysis was the privileged data processing technique.
The school principal of the teacher’s training school in Benguela province reveal behavioral attitudes and positions in line with the \textit{Laissez-Faire} Leadership and some categories of Transformational Leadership were the main results of this study.

KEYWORDS: School leadership, School principal, Leadership styles.
1. INTRODUCTION

Leadership in school context and their effectiveness in improving schools has been a recurring theme in recent decades. In addition, studies in this specific area of research have emphasized leadership importance as one of the factors of change, development and improvement of school organizations (Day et al., 2000, Elmore 2000, Fullan 2001, Leithwood & Jantzi, 2000). However, in current context of change and uncertainty, where school is a dynamic and complex organization, mobilization of different educational actors towards common goals, in a climate of flexibility, responsibility and creativity, becomes urgent. In fact, leading a school organization refers to the ability to delineate a personal vision for the school, to know how to communicate it to the different educational actors and to inspire them in order to influence them to adopt this vision (Barreto, 2009).

In this sense, the efficiency and effectiveness of an organization, in the particular case of a school, depends on the capacity of its leader to adapt the leadership style, not only to the context, but also to the needs of the followers (Hargreaves, Fink, 2007; Fullan, 2001). In this context, the present research is carried out within the framework of the Master's Degree in Administration and Management of Education, in Portucalense University. It aims to understand how teachers of a teacher’s training school in Benguela province (Angola) perceive the leadership of school’s principal.

2. THEORETICAL FRAMEWORK

School leadership has become a major issue, being one of the most studied topics by specialists in organizational behavior. However, the polysemy of the concept is undeniable, and leadership is a difficult concept to describe (Bennis, 1995), but easy to perceive and feel. In this sense, considering vast literature concerning leadership theories and taking into account the data collection instrument used in our empirical study - Multifactor Leadership Questionnaire (MLQ) we have selected three theories: Transformational Leadership, Transactional and Laissez-Faire.

According to transformational leadership theory, transformational leaders are not limited to solving diagnosed problems to achieve already outlined goals, but rather question themselves in order to contribute to a collective goal achievement (Bass & Avolio, 1993). As such, these leaders "are able to transform their subordinates into, committed, willing, and able to adopt spontaneous and innovative behaviors" (Barreto, 2009, 19). However, the followers’ commitment level depends, in this case, on satisfaction and confidence inspired by the leader, as well as on the way in which the
organization recognizes the followers’ contributions and is concerned with their well-being (Barreto, 2009).

In synthesis, transformational leaders are perceived as proactive, committed to optimizing development and innovation of individuals, groups and organizations; promoting high moral and ethical levels in followers and, simultaneously, performance indices higher than expected.

Concerning transactional leadership, it focuses on a system of rewards and punishments to be applied by the leader as a result of compliance or failure to achieve predefined objectives. In this type of leadership, the leader merely indicates what behaviors his subordinates should adopt and what goals to achieve, not influencing or motivating their followers (Rego & Cunha, 2003). The transactional leadership is based on "a clear dichotomy between the leader as superior and the follower as dependent, in a perspective of conformity rather than creativity in face of the challenges and goals imposed by the organizational reality" (Castanheira & Costa, 2007 p.142).

This style of leadership is based on transactions that take place between leader and follower. On one hand, leader defines objectives, clarifies roles of each follower and task requirements; on the other hand, they fulfill what they are told because of the possibility of being compensated or the risk of being punished.

Regarding the laissez-faire style of leadership, the emphasis is on subordinates. Thus, in Chiavenato's perspective, "the leader has a minimal participation, giving total freedom to group members to make decisions. They only intervene if requested, not carrying out any type of evaluation or controlling events. The group members choose and divide tasks "(2005, p. 125).

The laissez-faire leadership is characterized, therefore, by the absence of leadership behaviors or by apathetic attitudes towards problems, allowing their accumulation and aggravation to the point of conditioning a normal functioning of the organization. Leaders avoid getting involved in important issues, are absent when they are needed, and shy away from decision-making moments (Barreto, 2009).

Reflecting on leadership in a school context, Sergiovanni believes that "schools need special leadership because they are special places"; on the other hand highlights that schools have "to respond to the unique political realities they face" (2004, p.172).

Although there are different ways of leading schools, the results of some studies point out that success depends on whether the school principal is able to (or not) find the values and the appropriate means to manage tensions and dilemmas that emerge daily in school context. (Barreto, 2009, Day et al., 2000, 2009 and Fullan, 2001)
3. METHODOLOGY.

In the present study, the research problem is related to the analysis and understanding of leadership in a school context centered on the school principal. In this sense, the problem is assumed as a framing question, namely: What are the perceptions of the teachers of a Teacher Training School (TTS) of the province of Benguela about school principal’s leadership? Thus, in order to produce knowledge on this research problem, three research objectives were defined: i) to characterize the way in which TTS teachers in Benguela province perceive the leadership carried out by the school principal; ii) understand school principal’s influence in dynamics of teaching work; and iii) to develop knowledge about leadership style advocated in TTS in Benguela province.

A qualitative research method took place—the Case Study of a descriptive nature since, according to Yin (2005), it’s a method that is adequate to investigate a current phenomenon in their real context. Although the case study is often associated with the context of qualitative methodologies, it does not mean that it can be excluded from quantitative approaches (Latorre et al., 2003), since this research used the questionnaire survey technique, of a quantitative nature.

The empirical study took place during 2014 school year, and was selected an TTS, whose faculty consisted of 20 teachers. The main technique of data collection was the questionnaire survey: Multifactor Leadership Questionnaire (MLQ) by Avolio & Bass (2004), applied to all teachers, to which all the respondents answered and all of them were validated, aiming to identify types of leadership and efficacy behaviors associated with the leader’s individual success and the organization’s.

The MLQ consists of 45 assertions that identify and measure different behaviors, which are associated with a particular leadership style and its results (Barreto, 2009; Castanheira & Costa, 2007). The scale used is ordinal of five points (Likert type), representing the frequency with which these behaviors are manifested by the leader and perceived by the respondents. In the questionnaire we also integrated three questions to obtain data on personal and professional characterization of the responding teachers.

4. RESULTS AND IMPLICATIONS

The school where the present research took place is an TTS aiming initial formation of teachers, enabling them to exercise teaching activity of two disciplines in the secondary schools.

Regardless of the context in which it is inserted, leadership is a process characterized by the complexity inherent in it. In the particular case of this study, where the context was one of the Teachers' Training Schools of
Benguela province, the presented results are not subject to possible generalizations, since they are restricted to a specific and delimited context. However, they may be a potential contribution to the understanding of this problem in other teacher training schools in Benguela province.

In the school year of 2014, 365 students were enrolled, of which 183 were female. School leadership was composed by three members: a principal, a teaching assistant and an administrative assistant, two of which were graduates and one was a bachelor. Teaching team consisted of 20 teachers. Non-teaching staff was composed by 11 members.

Regarding personal and professional characterization of responding teachers to the questionnaire, the majority of respondent teachers (90%) are male, a fact that is in opposition to different studies that associate teaching with a professional activity developed by sex teachers feminine (Montero, 2005).

The age range between 25 and 30 years was the predominant one in respondent teachers (45%), followed by the interval between the 31 and 35 years of age indicated by 30% of the teachers. This reality reveals that the Benguela TTS has a young teaching staff, since only 15% of the professors stated that they were over 40 years of age. The majority of respondent teachers (85%) had between 7 and 18 years of teaching time and the remaining teachers (15%) had between 4 and 6 years of service time. The BA degree was the most prevalent academic degree in the group of respondent teachers (55%), and 35% had a bachelors degree and 10% professed to have completed a postgraduate course. With reference to the first research objective that related to the way in which teachers of an TTS of Benguela province perceive the leadership carried out by the school principal, we found that the global average values of each of the three types of leadership, similar to those of the respective categories, assumed low values, considering the scale where 0 corresponds to the minimum value and 4 to the maximum value. We recall that, in descending order, we have the laissez-faire leadership with the global average value of 1.78, secondly the transformational leadership with a global average value of 1.08 and lastly the transactional leadership with a value of 0.94. The three categories with the lowest mean values were, in ascending order, the Reward for Objectives attained (RO) with a value of 0.81, the Individual Consideration (IC) with 0.85 and the Intellectual Stimulation (IS) with a value of 0.96, the former being associated with transactional leadership and the others with transformational leadership.

On the other hand, the two leadership categories that obtained the highest average values corresponded to the laissez-faire leadership respectively: Passive Exception Management (PEM) with 1.61 and laissez-faire (LF) with 1.94. These results indicate that the teacher respondents consider that the leader is
resigning from his/her duties, avoiding making decisions and getting involved in important issues and issues (Barreto, 2009). In other words, these behaviors reveal that the leader tends to abdicate his responsibility and authority (Castanheira & Costa, 2007). In sum, considering the results obtained and the fact that the global mean values of the different leadership styles are less than 2, we infer that the respondent teachers do not perceive in the school principal a behavior strongly associated with any of the three types of leadership in study. However, attitudes, behaviors, and positions perceived by responding teachers tend to be closer to the characteristics associated with laissez-faire leadership and transformational leadership, with a prevalence of the former.

The second objective of the study was related to the understanding of the influence of the school principal in the dynamics of teaching work. The results of the study did not explicitly associate the school principal of TTS with attitudes and behaviors of any kind of leadership. Nonetheless, the laissez-faire leadership was the one to which, overall, respondents were most closely involved when asked to comment on the school principal's behavior.

In the laissez-faire leadership style the PEM category refers to a leader who: (i) avoids acting at the right time, acting only when problems escalate; ii) expects something to go wrong before acting; iii) makes the idea that while things are working should not be changed; and (iv) expects problems to become chronic before taking action. (Avolio & Bass, 2004). In turn, the LF category points to a leader who: i) avoids getting involved when important issues arise; ii) is absent at crucial moments; and (iii) excused itself from taking decisions and postponing the response to urgent issues (Avolio & Bass, 2004). Thus, we infer that a leader who presents these behavioral attitudes will tend to condition the teaching work dynamics and ultimately to cause entropy among followers. In transformational leadership style, respondent teachers highlighted two categories: idealized influence attributes (IIA) and idealized influence behavior (IIB). The first category refers to leaders who: (i) display a sense of power and leadership; ii) act in a way to be respected and a source of pride for those who are associated with it; and iii) privilege the interest of the group above the individual (Avolio & Bass, 2004). In turn, category IIB points to leaders who: i) inspire and energize in their leaders a vision for the institution; (ii) share their values and beliefs and their behavior is consistent with them; (iii) place emphasis on the collective spirit of mission; and (iv) have a strong sense of timeliness. (Barreto, 2009). In this way, we infer that a leader who manifests these behaviors can enhance the dynamics of teaching work both in terms of ability to inspire, motivate and foster team spirit, as well as the construction of a common vision and positive expectations.
The objective of the third research was to develop knowledge about the style of leadership advocated in TTS in Benguela province. Thus, we found that the respondent teachers pointed out to a school principal that privileges behaviors and attitudes associated with *laissez-faire* leadership and some aspects of transformational leadership. The analysis of the leadership results is in line with the previous results, since in the Extra Effort (EE), Efficacy (E) and Satisfaction (S) categories the global mean values translated, respectively: 0.70; 0.82 and 0.65. However, on a scale of 0 to 4, these values are low and indicate on the part of the leaders some dissatisfaction with the behavior of the leader, since they do not perceive the figure of the leader as someone who encourages them to achieve more than expected, To exceed initial expectations and to promote the will to overcome its limits. (Barreto, 2009).

5. CONCLUSIONS

In view of the results obtained, we can conclude that the school principal of TTS presents behavior is closer to the *laissez-faire* leadership and transformational leadership. The combination of characteristics listed above reveals some antagonism, since the prevalence of behaviors associated with the *laissez-faire* leadership style is connoted with a leader who abdicates his/her responsibility and authority (Antonakis et al., 2003), which may lead the leaders and the organization to entropy situations. On the other hand, behaviors associated with transformational leadership are consonant with a leader who is respected by the leaders, who inspires confidence, is proactive, motivates others and is considered an example to follow (Castanheira & Costa, 2007). This discrepancy of behaviors perceived by responding teachers in the leader / school principal of the TTS induces us to equate: i) the comprehension of the nature of the study by the responding teachers; ii) the interpretation attributed to the different assertions of the questionnaire survey; and iii) the possibility of conditioning factors at the time of response. Since the study was carried out in a specific context - Benguela province TTS - and results refer to how teachers perceived the leadership of the school principal, we suggest that this document be returned to the school in order to be discussed and analyzed with the school principal. The results obtained in the categories of leadership outcomes also revealed little global average values, which may indicate some dissatisfaction and lack of motivation among the teachers responding to the leadership that the leader of the TTS has created. In this sense, we suggest that the leadership team develop activities that promote team spirit and share a common vision, in order to mobilize all the community elements for a more active participation in improving the performance and quality of the service provided.
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Plotlines in preservice teachers’ relationships with second language learners

Stefinee Pinnegar¹, Celina Lay², Linda Turner³, Jenna Granados⁴, and Sarah Witt⁵

¹Brigham Young University  stefinee@byu.edu;  
²Brigham Young University  celina@layfamily.net  
³Brigham Young University  linda_turner@byu.edu  
⁴Brigham Young University  jenna.granados@gmail.com;  
⁵Brigham Young University  byu.tell.assistant@gmail.com

ABSTRACT
Because of refugee and immigration movement around the world, most countries face the challenge of teaching the children of these populations to become literate and academically successful in a second language. Yet, most teacher education schools do not provide extensive second language development education. Just as importantly, Goldenberg (2008) in the US context argues that even when teachers are educated about best practices for teaching a second language they are in most situations not willing to enact those practices. This study examined case studies of ELs created by preservice teachers during student teaching to explore how these preservice teachers positioned themselves in relationship to second language learners. The researchers used positioning theory to examine the case studies constructed by 60 preservice teachers in their capstone experience. The cases selected were of 3rd to 5th grade students in schools that had at least a 10% English Learner (EL) population. We identified three plotlines from the cases. Common across the plotlines was the positioning of ELs as positive, pleasant and progressing based on the preservice teachers work with them. There are implications for both teacher education and research.

KEYWORDS: second language learners, preservice teachers, teacher/student relationships, positioning theory

1. INTRODUCTION
We live in a time of great global mobility where through mechanisms of refugee status, increased immigration, and world disasters, populations of people move across national boundaries. This boundary crossing has
educational impact. First, these populations include large numbers of school age children who need to gain academic prowess in a new language. For example, the population of English learners ELs in U.S. K-12 schools continues to grow (NCES, 2016; Pandya, Batalova, & McHugh, 2011; Payan & Nettles, 2008). International migrants worldwide are up from 22 million in 2010 to 24.4 million in 2015. In the U.S., the average number of English learners for all states is 9.6% (OELA, 2017). Across the state of Utah where our teacher education program exists, the average English learner population is 6%. When a school’s enrollment is higher than 10% ELs, it is considered highly impacted. Many schools in Utah have as many as 50% of the students needing to become proficient in English. Moreover, currently in Utah about half the refugee population are school-age children, a finding that is often masked in the statistics (http://health.utah.gov/epi/healthypeople/refugee/datastatistics/2015/annual%20Arrivals%202015.pdf). These statistics are evidence of the challenge faced by teacher education programs to educate preservice teachers that both know how to teach second language learners in their mainstream classrooms as well as being willing to enact the practices most likely to result in EL student success.

Indeed, an increasing number of second language learners are without teachers who can and will provide educational support and engage in best practices. In fact, only 12% of the universities across the U.S. prepare preservice teachers to work extensively or effectively with ELs. Most preservice teachers are not being adequately prepared to support ELs (Lucas, Villegas, & Freedson-Gonzalez, 2008; Samson & Collins, 2012). In fact, while 17 states have general requirements related to EL needs, 15 states do not (Ballantyne, Sanderman, & Levy, 2007).

While it is difficult to educate preservice teachers to enact best practices, what may be more problematic is whether these teachers will be willing to regularly enact those practices or even try them out. Goldenberg (2008) argues that while there has been a massive professional development, the bigger problem is that teachers never practice the strategies and techniques they are taught (Gersten, et al. 2014). At least in the U.S., teachers continue to hold false assumptions about second language learner (Gonzalez, 2016). To meet the educational needs of these second language learners it is essential that colleges of education prepare preservice teachers to teach these students (Daniel, 2014). A truism of teacher preparation is that student teaching (internships, practice teaching) is the window of opportunity for preservice teachers to enact or reject practices they have learned in teacher education in real world settings. In enacting these practices, they position themselves as teachers on the plotline of
being a teacher that they would most like to take up when they become inservice teachers. This positioning of themselves and their students reveals the duties, obligations, and responsibilities they assume as teachers.

Most often associated with Harre and van Langenhove’s (e.g., 1999), positioning theory explores the ways identities and the accompanying duties, obligations and responsibilities emerge as individuals position self and others. The use of positioning theory allows exploration of the way we position others and are positioned by them. These theorists suggest it is not always how people are positioned but which positions they take up and how they embrace and enact the rights, responsibilities and duties entailed in one position rather than another. This is an important tool in examinations of how teachers understand or enact practices as they position and are positioned by students, institutions, or colleagues since it allows the researcher to focus on interactions rather than power.

Using this theory implies that we explore the cognitive process that are critical in the support of action people take in specific times and places and what those actions mean (Harré, Moghaddam, Cairnie, Rothbart & Sabat, 2009). The value of positioning theory is its attention to the ways preservice teachers interact with and represent students, in given times and places.

This study examined case studies of ELs created by preservice teachers during student teaching to explore how these preservice teachers positioned themselves in relationship to second language learners.

2. METHODOLOGY

The data source for this study were from 60 preservice teachers’ capstone projects--working in traditional semester long placements or as the teacher or record across a year. The cases came from 3rd-5th grade classrooms in schools with EL student populations of at least 10% so preservice teachers would have choices about who to study for their cases.

We began with the student researchers coding five of the cases for themes. We met as a group reviewing the codes and their ability to account for the case as a whole. We created a codebook and independently coded these cases working until we reached consensus (Miles & Huberman, 1994). We then each analyzed additional cases using the coding categories, seeking disconfirming evidence, and ascertaining whether codes accounted for all cases. We met again, to review the codes. We continued coding. Then met again. At this third meeting, having coded more that 50% of the data, we sought to uncover patterns in the ways in which themes came together and formed plotlines or patterns (Maxwell & Miller, 2010). In this analytic session, we identified the ways
preservice teachers positioned students and themselves as teachers within certain plotlines, utilizing the analytic triad. We identified three plotlines and the attendant positioning of the preservice teacher in relationship to their students along these plotlines. We reviewed our earlier coding identifying the plotline and positioning of the earlier coded cases and then coded the uncoded cases. To further triangulate our analysis, we presented our analysis to colleagues and preservice teachers strengthening the trustworthiness of our findings.

3. RESULTS
We identified three separate but related plotlines. The first is a plotline of the teacher-student interaction as positive and pleasant and even if struggles occurred, teachers supported ELs in overcoming them. While we also saw descriptions repeat such as “lack of confidence” or “struggling,” when describing the personality of their chosen ELs, preservice teachers repeatedly describe their ELs as “very kind and caring,” “social,” “sweet,” “talks too much in class,” “eager to learn,” “bright,” “funny,” “happy,” has leadership abilities,” or “friendly.” While in the case study preservice teachers reported on the assessment results and interpretation of them, in their reflections on the experience, preservice teachers seldom if ever commented on the academic skills, the ELs language or literacy development or their actions to support the students’ development.

One preservice teacher, Scheel, described her EL’s personality in both the case study and her reflection. In her case study she says, “Johnny is intelligent, easy to work with, cooperative… He has a pleasant personality, and although he is timid, he gets along well with his peers and other adults.” In Scheel’s reflection on working with this EL, she says, “I enjoyed working with my EL student. He had such a sweet disposition and pleasant personality. His smile could melt an iceberg. He was most comfortable with a one-on-one or small group situations, so this was the best way to get to know him. His overall personality was timid, but he was very cooperative when he worked with me for guided reading or other projects that the teacher would ask me to specifically zone in on him and possibly one or two other children.” Like other examples, in this one, the preservice teacher identified the EL’s difficulty in being shy but the student teacher overcame that. The student teacher indicated that the cooperating teacher specifically asked the student teacher to work with this student.

In plotline 2, the EL was selected by the mentor teacher; however, the preservice teacher positions him/her self as the person who is aware of the EL, corrects or adjusts things the teacher might overlook and in articulating
observations the mentor teacher’s action, the student teacher is somewhat judgmental.

Flake is a student teacher who notices that her mentor teacher seems to “forget” Julie, the EL the mentor teacher had assigned her. Flake describes how Julie was no longer receiving pull out ESL services and still struggled with English. She then explains how nice it was to get to know Julie one-on-one, acting more like an observer than a teacher or even as a partner with her mentor teacher. She is not really critical of her mentor teacher, since she also observes that “her sixth grade classroom is a safe environment…full of laughter and learning.” Further Flake comments that her mentor teacher “didn’t allow Julie to be excused from things because she was ‘different’ or still learning English.”

Notice that Flake indicates that she is very aware of Julie and knows that Julie still needs help in developing language and literacy skill even though she has moved beyond the direct language instruction provided in pull out settings. Flake positions herself here as the one who really knows and understands what Julie needs and is positioned to put Julie first. Flake positions herself as the one who does not forget Julie. Even in her comments about the way the teacher organizes the classroom, Flake reveals herself as the one who knows what Julie needs and affirms what the teacher does provide.

The reason we indicate in this example that Flake is a student teacher is that this plotline was more commonly seen in the student teachers rather than interns, since the interns were teachers of record and student teachers worked directly under a mentor within that teacher’s classroom.

In plotline 3, the preservice teacher is an intern and the teacher of record. Further, the interns do their case studies at the end of the first semester rather than in the first four weeks. Thus, they had worked with ELS in their classroom across an entire semester. As result the interns almost always selected an EL to study who had made according the intern amazing academic learning strides. Which positioned the intern as an outstanding teacher who had the capability of moving struggling students to competent readers (or almost competent).

For example, one intern teacher, reporting about Karol, said that in a parent teacher conference the intern emphasized the importance of reading 20 minutes a day and then encouraged the mother to have her daughter read even in the L1. After this meeting, the preservice teacher reports, “After having talked to Karol’s mom and made the clarification that reading in Karol’s L1 language was okay, I began to see a lot more improvement in the reading
getting done, and Karol making progress in her level of fluency and comprehension.”

Notice that the intern is positioned as someone who knows little and simple tricks (reading at home in L1) that will lead an EL to make great strides in learning a second language. This repeating theme of the preservice teacher taking action and acting on knowledge results in great progress. This plotline indicates preservice teachers need or at least a preoccupation with seeing progress that they can attribute to their own action. Sometimes the interns reveal anxiety as they take on the teacher mantle and watch for what their lessons and their one-on-one attentions may be accomplishing for their EL.

In another example, the intern talks about how her insight and action lead to changes for Edgar.

“When Edgar first started school at Lake Elementary we were unaware of his special educational needs. I noticed that he was far below any of the other students in my class, which concerned me. He seemed to really struggle with every day class work. Once we realized that he needed special services and began to provide those services for him, his classroom behavior and classroom work has dramatically improved.” Notice the change in subject from “We” to “I” and then “we” again. We represents her as part of the school and a novice who does not potentially understand the teacher as the one who usually initiates processes that result in students acquiring student services. However, she asserts herself as the one who knows something everyone else is overlooking. This kind of assertion of the preservice teacher as the real knower is evident in Flake’s assertion about Julie. Here, the intern notices and acts on the “simple” thing and this results in great improvement just as the earlier example here.

4. DISCUSSION

A fundamental plotline across all cases involved the development of positive teacher-student relationships. In this plotline, attractiveness and positive personality of the student was important. The three plotlines underlying the case studies are reminiscent of hero stories in which the preservice teacher is successful in working with a population the preservice teacher may be somewhat leery or concerned about. In all of the plotlines, the preservice teachers position themselves as successful and the students as pleasant, hard-working, and learning. All of this has implications for teacher education and research.
5. CONCLUSIONS/IMPLICATIONS

One of the tensions the plotlines reveal is preservice teachers understanding of their duties, obligations, and responsibilities in their new identity as teachers. Their positioning while assertive of self as knower and self as potential savior for student and self as able to construct positive pleasant relationships with those teachers might choose to ignore or not help indicates their desire to story themselves as the “good teacher” who makes all the difference in the lives of their students. They want to see progress in the student but may not have a broad vision or sense of the complete context of students lives in schools and out and thus their analysis is often off. For example Flake overlooks the fact that the teacher has not forgotten Julie because she gave Julie to Flake to provide that needed attention and extra education. They are required to interpret available data on a student and make real-life determinations about curriculum based on that data. They are also required (for the first time) to administer language proficiency testing, analyze the results, and come up with real-life recommendations. It is scary to transition to a place where your professional knowledge is asked for and know that your decisions affect another’s life. Many of the preservice teachers find comfort in getting to know a bright and cheerful EL and are often surprised at the personal (and often typical) details they learn about them and their families.

In the case studies, it is clear that this is a good experience for preservice teachers to assess, work one on one with, and support ELs in their education. Thus, providing such experiences are important in the development of preservice teachers. We are uncertain whether this work will transfer into the regular teachings practices, but there is some assurance that it will as they are narrating these experiences as important in their identity as good teachers. Rather than disparaging these preservice teachers representing their experiences in such a positive light and themselves as good teachers, we wonder what the implications are. We wonder if the fact that preservice teachers here gravitated toward more pleasant personalities and represented themselves as heroes in their plotlines will result in their being more willing to work with a larger range of ELs. If their first encounters are positive ones, will they feel more confident and be more willing to enact the practices for teaching ELs they learned in their preservice teaching.

Future research could explore more deeply the issues of positioning of the preservice teachers accounts so that we understand better the variance, hesitancies, and knowing they display. It would also be interesting to ask these teachers to look again at their case after two or more years of teaching or
follow them into their practice to see how willing they are to work closely with ELs.

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Plotlines in Preservice Teachers’ Relationships with Second Language Learners


Instructional collaborative practices: a Brazilian case study

Ana Paula Bossler\textsuperscript{1} and Pedro Z. Caldeira\textsuperscript{2}

\textsuperscript{1}Universidade Federal do Triângulo Mineiro\hfill Paula.bossler@gmail.com\textsuperscript{1}
\textsuperscript{2}Universidade Federal do Triângulo Mineiro\hfill pedrosanycaldeira@gmail.com

ABSTRACT
This study aims to describe the collaborative practices among primary and secondary Brazilian teachers. An online survey of teaching practices asked for the teachers' actions regarding collaboration, namely the sharing of lesson plans and instructional materials. Completed the survey 79 teachers, mainly from the state of Minas Gerais. Although at school the participants recognize the advantages of collaborative teaching practices, usually they do not join forces with one another. In fact, they do not share lesson plans and much less their instructional material. The few collaborative practices reported included a Science and Knowledge Fair. However, in site observations showed that those practices could not be classified as collaborative because: 1. The students' teams compete among themselves, 2. Students are not encouraged to look at their classmates' work, 3. The Fairs result only in an accumulation of tasks and a great meeting of people. In-depth interviews with four teachers have made it possible to understand why teachers are not usually involved in collaborative practices at school: fear of critics, as they fear their colleagues criticize their lesson plans or their instructional materials, and fear of competition, for example they fear their colleagues will take up their jobs in the future. Two of these teachers said that they set out to share lesson plans and educational materials in the beginning as teachers, but they quickly quit when they saw that their fellows did not share with them their work.

KEYWORDS: collaborative learning, collaborative instruction, fear of criticism, fear of competition.

1. INTRODUCTION
Research shows that teaching as a profession is very lonely. However, when teachers work cooperatively among themselves, their students have higher academic results (Kuh, 2016).

Our purpose here is to identify and analyze collaboration practices among primary and secondary Brazilian teachers, namely why, when and how teachers develop collaborative practices and processes, both at the instructional and at the learning level, for example:

1. What kind of collaboration processes can be identified in the instructional-related practices and their actual collaborative practices regarding instruction-
related tasks, as planning, design of instructional content and materials, or evaluation practices?
2. When do teachers initiate collaborative practices and procedures?
3. What kind of learning benefits can be identified because of collaborative practices and processes both on teachers and students?

2. THEORETICAL FRAMEWORK

2.1. Teachers as professionals

Teachers as professionals have a strong feeling of loneliness, as their work demands long pre- and post-instruction cycles of isolation (for instance, instruction planning or evaluation) and close doors instruction cycles (Grossman, Wineburg, & Woolworth, 2001; Kuh, 2016). At schools, teachers interact mainly with students, with an occasional Hi to their fellow mates in the hallway (McInerny, 2016), with their time almost fully consumed with teaching-related projects.

Yet, in the past three decades, instructors are encouraged to join forces in what affects learning (Joyce & Showers, 2000; Lassonde, & Israel, 2010; Showers & Joyce, 1996), and instruction (Blasé & Blase, 2000; Ponte, Segurado, & Oliveira, 2003).

Recently, educational research focused on collaborative instruction or work among teachers, between teachers and researchers, between teachers and students, or between teachers and parents (Blase & Blase, 2000; Lieberman, 1986; Ponte et al., 2003). The work of Lave and Wenger (Situated Learning – Lave, & Wenger, 1991 – and Community of Practice, CoP – Wenger, 2010) and Schön (reflective practice – Schön, 1987) influenced the research on collaborative practices between teachers.

A community of practice is a group of people who share a concern, a set of problems, or a passion for a topic and who deepen their knowledge and ability on the topic by interacting with one another in a continuous way.

Situated learning and learning by doing are the basis of the communities of practice, as learning a profession is an inherently social process. Situated learning occurs in the social contexts of the learner life, focusing the inextricable relationship between knowledge and practice, namely social practice. Thus, situated learning emphasizes: 1. A comprehensive understanding of the whole person, rather than 'delivering' a set of factual knowledge of the world; 2. An activity in and with the world, and; 3. A perspective where the agent, activity and world mutually shape one another (Lave & Wenger, 1991).

Teaching and being a teacher can both be analysed according to communities of practice and the situated learning approach, since both are social practices inserted in a specific community of practice.
Schön (1987) have shown that teacher training should have a strong reflective part, far beyond what is traditional, usually a course centered-knowledge (Zeichner & Liston, 1996).

2.2. Teachers' professional development and collaborative practices
McDaniel and Colarulli (1997) considered four dimensions in collaborative actions in schools: degree of integration, degree of interaction, degree of active learning and student engagement, and degree of faculty autonomy or interdependence. These dimensions are the base for the sharing experiences among teachers, regarding their instructional experiences, between teachers and students, regarding their interactions inside and outside the classroom, and among students regarding their learning experiences and academic achievements.

Sharing experiences between teachers is very important, as it favors the development of critical analysis, problem solving and decision taking skills (Damiani, 2008)

However, such sharing experiences, typical of the collaborative work, usually emerge in educational settings were collaboration is the cornerstone of the instructional and learning processes (namely in special education or early childhood education), and in educational settings concerned with teachers' professional development (Toom, 2016), with a strong collaborative culture (Fullan, 1996), or with an effective instructional leadership (Blase & Blase, 2000; Avidov-Ungar, 2016).

Collaborative work between teachers is much more than a collection of sparse collaborative actions, as “the single existence of collaboration must not be confounded with a culture of collaboration (Fullan & Hargreaves, 2000, p. 71, quoted in Damiani, 2008, p. 213).

The assumptions about teachers and work structure in schools are usually “unreasonable, unwise and unnecessary” (Clark & Meloy, 1990), and therefore they discouraged the development of a collaborative work culture.

The schools and the teachers need to find the way to change from a bureaucratic mode of instructional design and development to a professional one (Avidov-Ungar, 2016; Darling-Hammond, 1990; Lieberman, 1990). And the change should be from teachers working on tasks and jobs for teachers working with one another, and with other professionals (Lieberman, 1986), acquiring, then, a different posture regarding the profession, the instructional design and strategies, and students learning.

There are three main ways to change the school work culture, towards collaboration: an outside intervention (with the help of consultants or University researchers, either in collaborative or non-collaborative processes – one good example is the peer-coaching model developed by Bruce Joyce and Brianna Showers (Joyce & Showers, 2002; Showers & Joyce, 1996), leaded by
the principal (Blase & Blase, 2000), or executed by the teachers themselves (and an example are the Critical Friends Groups -CFG- Kuh, 2016).

Research results show that outside interventions, e.g. training, have a very weak result at changing teachers’ behavior: “As few as 10% of the participants implemented what they have learned” (Showers & Joyce, 1996, p. 12).

However, over the years the coaching and the peer-coaching interventions in schools, although expensive, revealed to be a very effective way to ensure teachers’ professional development, helping teachers to teach and, in the way, indirectly helping students in their learning and academic achievement (Joyce & Showers, 2002).

To promote a collaborative working culture, principals can exert an effective instructional leadership, namely “talking with teachers to promote reflection and promoting professional growth.” (Blase & Blase, 2000, p. 132). An extensive research conducted with more than 800 junior and high-school teachers showed that when principals talk to their teachers they make suggestions, give feedback, model the teacher’s behaviour, inquires, and asks advice and opinions and give praise. As a result, teachers feel that:

- they are not just another statistic;
- they are seen and herd; and
- they are treated as intelligent people with valid and valuable opinions.

Principals promote teachers’ professional growth by valuing “dialog that encouraged teachers to critically reflect on their learning and professional practice” (Blase & Blase, 2000, p. 135), namely accentuating the need to study teachers teaching and students’ learning, supporting collaborative work between teachers, developing peer-coaching efforts between teachers, or inspiring and encouraging redesign of lesson plans and programs.

As a result, principals’ effective instructional leadership has “strong ‘enhancing effects’ on teachers, emotionally, cognitively, and behaviourally” (Blase & Blase, 2000, p. 135).

Critical Friends Groups is “a model of reflective practice and professional development (and) has its origin in the work of Ted Sizer.” (Kuh, 2016, p. 295) The CFGs have between six and 10 participants, all classroom teachers, and is an approach that focus on teacher practice, that is teacher-driven, and that promotes professional collegiality (Kuh, 2016).

3. METHODOLOGY

In a first moment, was developed an online survey (July-November 2016) regarding collaborative practices and the role of technology to get these practices among primary and secondary teachers. The survey had two personal questions (age and gender), three professional questions (years as a teacher, years at the school and courses she taught), three collaborative-related practice
questions (production of school-related contents and materials, willing to share these contents and materials, taking part of a professional social network) and two related to the uses of technology (the technology-in-use inside the classroom, and the tasks developed with the help of the technology).

In a second moment, the authors observed the collaboration processes between teachers and students in a Brazilian Junior and High School. The observation was done in the two last trimesters of 2016 and focused on the collaborative processes students undertake for a Science and Knowledge Fair (6th-12th grades’ student Science projects on Water and Sustainability). The observation aimed to identify and analyze the teachers’ collaborative practices at the definition, design and development steps of the Fair and to identify and analyze teachers’ and students’ collaborative practices regarding the Fair and the Science project for the Fair.

In a third moment, the researchers conducted in-depth interviews with four teachers, trying to understand why Brazilian teachers usually are not involved in collaborative tasks and work.

4. RESULTS

4.1. The survey

The participants’ answers were collected through Monkey Surveys and a total of 79 Science teachers participated, of which 78,6% were female and 21,4% were male, 21,4% had less than 25 years, 64,3% had between 25 and 45 years and 14,3% had more than 55 years.

Professionally, the sample had 46,9% of teachers with less than a year or between 1-3 years as teachers, 14,3% between 3-5 or 5-10 years of professional practice and 35,7% with more than 10 years as teachers.

More than one-third of the sample (42,9%) had on some occasion developed school-related content or material and had used it with instructional purposes, and more than half of the teachers (57,1%) are willing in the future to produce instructional-related content or material.

In Table 1 we can observe the teachers’ willingness to share content or materials they produced (in the present day and in the future).

<table>
<thead>
<tr>
<th>Willingness to share content or material</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, I have already shared my productions</td>
<td>21,4</td>
</tr>
<tr>
<td>Yes, I am willing to share my productions</td>
<td>64,3</td>
</tr>
<tr>
<td>No, only if other teachers also share their productions</td>
<td>14,3</td>
</tr>
</tbody>
</table>

Table 1: Teachers’ willingness to share their productions.

The most part of the sample (85,7%) already shares or are willing to divvy up their productions in the hereafter.
Yet, just one third of the teachers (37.4%) is dynamic users of professional social networks (see Table 2).

<table>
<thead>
<tr>
<th>Do you know and take part in any professional social network?</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No and I do not know any professional social network</td>
<td>45.9</td>
</tr>
<tr>
<td>No, I know this kind of network, but I do not desire to take part in</td>
<td>18.4</td>
</tr>
<tr>
<td>Yes, I take part in a professional social network</td>
<td>35.7</td>
</tr>
</tbody>
</table>

Table 2: Teachers’ knowledge and utilization of professional social networks

4.2. The observations

The authors observed the collaborative practices of teachers and students in a Science and Knowledge Fair, involving 32 teachers and 882 6th-12th grade students.

Students, in groups of six, had to set up and deliver a Science project on *Water and Sustainability*. The project should include a functional artifact related to the theme. This Science project was the final evaluation moment of the school year. The two only teachers’ collaborative tasks identified were the definitions of the Science Fair theme and the task distribution during the Fair.

Results show that, less than 40% of all student groups developed medium or high degrees of collaboration, and most of the students’ groups (more than 60%) shown low or no collaboration at all in their Science projects’ development.

In site observations showed that the levels of collaboration between students are very low, because students’ teams compete among one another; furthermore, students were not encouraged to look at their classmate’s work on the presentation day and last, but not least, the Fair resulted only in a collection of tasks and a big gathering of people.

4.3. The in-depth interviews

In the in-depth interviews, two questions were asked to the teachers:
1. Why do you think Brazilian teachers do not collaborate among themselves?
2. Why do you not share your lesson plans or your instructional-related content or material production?

The primary reasons to excuse the low degree of collaboration between Brazilian teachers are the extreme individualism of the people from Brazil (*We are very individualistic, we think solely in terms of ourselves, our families and, at last, our friends – no one else matters!*).

However, when teachers were asked why they do not share their lesson plans or productions, they claim fear of criticism (*Others could judge negatively my work*) or fear of competition (*If I gave everything I could loosen my leverage – regarding the professional career – Other teachers could take up my job in the future*).
Two of the teachers also said that as beginner teachers, they started to share lesson plans and their instructional-related content and materials, but they quickly stop because their colleagues did not do the same (“Sharing must be a two-way road!”).

5. IMPLICATIONS/DISCUSSION.
It seems that teachers that already know and use professional social networks (mainly course-centered ones) and develop their own instructional-related content or materials are more willing to share their productions. However, results show the need to work both with teachers and students the benefits of collaborative work, specially when aiming better students’ educational achievement (Kuh, 2016; Lassonde, & Israel, 2010). Teacher collaboration must be addressed not only at the course level, but also at the school level, as some research had shown that students’ educational achievement is “greater in schools where teachers report high levels of collective responsibility for student learning” (Kuh, 2016, p. 293).

The observations show without any doubt that collaboration is not even a sparse collection of tasks and jobs, as the results show, the participants had a perspective of collaboration as working on the Science and Knowledge Fair and not as working with one another to design and develop the Fair (Lieberman, 1986).

Supplementary, in the Brazilian educational system, primary and secondary teachers, in addition to their classroom and school-related duties (for instance, meetings), are asked to take part in weekly training sessions. In these sessions, the school board (director, supervisor, and or advisor) defines the topic to discuss in each one of them. The sessions can include subjects like How to implement effective collaboration processes between teachers, How to use technology to increase the levels of collaboration between teachers, or How to design instructional scenarios to ensure that student groups actually develop collaborative learning and work processes. Unfortunately, as one Brazilian high school teacher once said, those sessions are ”Spaces to keep teachers up-to-date regarding educational legislation and school rules and to clarify who commands and who should obey.”

6. CONCLUSIONS
The actual degree of collaboration between teachers is very low, albeit results show clearly that a little more than one-fifth of the teachers of the sample of this study have already shared at least once their instructional-related productions, and almost two-thirds are willing to do it in the future. The observations also confirmed that the teachers do not initiate collaborative work processes or have few collaborative processes among themselves, which seems to reflect on students’ learning and work processes, as observed in the
phases of preparation of the Science and Knowledge Fair, and in the design and development of Science projects. The teachers’ weekly training sessions could and should address collaboration issues, both between teachers and between teachers and students alike.

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“It is important to look into own practice” Developing teacher education pedagogy in drama.

Ása Helga Ragnarsdóttir¹, and Hafdís Guðjónsdóttir²

¹University of Iceland, School of Education
asabragn@hi.is

²University of Iceland, School of Education
hafdgud@hi.is

ABSTRACT
Drama is based on a process that children use from an early age, that is, using their imagination, games and creative play to learn about themselves and their environment. With role-play, children practice putting themselves in the shoes of others and in that way they can learn to identify their peers’ different perspectives and emotions. The purpose of this research was to examine the ways in which methods of drama teaching can be further developed, and to show how the teacher educator can transform herself and her practice. Ultimately, the aim was to gain a better understanding of the teacher educator’s work and how she can develop her teaching. In the study, the teacher educator was the main researcher; other participants were student teachers, and a research partner. The research methodology was based on a collegial self-study approach, as we continuously critiqued and developed the teaching practice as we went along. Data was gathered through video recordings, a blog post, and journal writing. The biggest challenge was the process of supporting student teachers to connect their theoretical backgrounds and daily experiences with their drama teaching practice. The drama teacher realized that she had to spend more time reflecting on the interplay of teaching methods and the practice. In so doing, the student teachers acquired further ways through which they could seek authentic experiences characterised by rich learning opportunities.

KEYWORDS: Drama, role-play, self-study

1. INTRODUCTION
Teachers need to have the ability to reflect on their practice, engage with sensitive matters, and the competence to try new ways of teaching. Thus, it is essential that teacher education programs provide opportunities to develop the needed skills. Being a drama educator means having the ability to apply the techniques of drama in education in a way that releases the students and motivates them, rather than reifying the theory, and encourages them to look beyond the surface of learning to teach (Hamilton, 2006).
The purpose of the research was to examine how drama-teaching methods can be further developed and how these methods can prove fruitful classroom settings. The aim was to gain a better understanding of the teaching and the work of the teacher educator.

In this paper, we will present our study of a drama class taught to student teachers that are on the second and third year of their teacher education program. The drama class is 5 ECTS and is compulsory for this group.

2. THEORETICAL FRAMEWORK

Drama is based on a process that children use from an early age, that is, using their imagination, games and creative play to learn about themselves and their environment. In educational contexts, drama calls for the active participation of the students and their cooperation. Students are offered the opportunity to enter an imaginary world and deal with various problems related to the subject at hand. Through this imaginary process and by tackling different roles, the students learn to adopt varying perspectives that at the same time shape their opinions and teach them how to make decisions based on their experience of these roles. Addressing problems and seeking out solutions can enhance the student teachers’ understanding and knowledge. Furthermore, by linking new knowledge with prior experience and knowledge, the student teachers can gain a deeper understanding of the subject (Martin, Franc & Zounková, 2004). By the same token, the role-playing process teaches the student teachers how to put themselves in the shoes of others and how to engage with and adopt the varying perspectives of others.

The philosophy of drama education is influenced by Dewey’s (2000) pedagogical theories. Dewey underlined that it was important that students are aware of when learning takes place, that knowledge becomes a reality if a student is able to connect their activities to experiences that are significant to them.

Taking this knowledge into account, the drama teacher is constantly moving between content and context with the students, and must therefore be both inside and outside the students’ activities. At the same time, both tension and pleasure is created in this dynamic which calls for a deeper understanding of how drama in education works. Like Anderson (2012) points out, drama sits at a unique place within the curriculum, namely, at the intersection between intellectual, creative and embodied education. Drama teachers have at their disposal an enormously powerful pedagogy that has the potential of transforming young people and schooling (Anderson, 2012).

1. Reflection is a tool widely used in educational settings; it is not only a practice for teachers and student teachers, teacher educators can also benefit from reflecting on their practice. If teacher educators want to make changes in their practice, they need to understand how their
mission as educators influences their professional identities, their practice, and their behaviour. Core reflection is a framework or a reflective tool that encourages practitioners to use ‘the onion model’ to critically dive under the surface as they reflect on their practice. The onion model involves reflection on six different levels: environment, behaviour, competencies, beliefs, professional identity, and mission (Evelein & Korthagen, 2015).

The core reflection approach is grounded in a shift from an emphasis on deficiencies toward a focus on the human potential and people’s personal strengths. In order for student teachers and teacher educators to make changes in their underlying sources of behaviour, they need to be cognisant of how their mission as teachers influences their professional identities and the behaviour and competences they develop as they carry out their work within different environments.

As a life-long learner and a drama teacher, I wanted to create an opportunity in which I could conduct my research alongside the students, and invite them to become partners in the inquiry; where they could collaborate with me in wondering about what, and how, they are learning. To strengthen the research, I contacted a colleague and invited her to become our research partner. According to Atwell (1987), conducting a participatory inquiry-study in partnership with student teachers can turn the learning environment into a more thoughtful place. Student teachers and teacher educators become empowered through the process of understanding themselves as knowers of themselves, their situations, the students, subject matter, teaching and learning.

3. RESEARCH METHODOLOGY AND DATA COLLECTION

The study was a collaborative self-study of teacher education practice couched in a qualitative research methodology (Pinnegar & Hamilton, 2010; Samaras, 2011). The purpose of the study was to investigate how drama-teaching methods can be further developed and to reveal how the teacher educator can transform herself and her practice (Samaras, Guðjónsdóttir, McMurrer & Dalmau, 2012). The aim, in the last analysis, was to gain a better understanding the work of a teacher educator and how she can develop her teaching.

The study focused on the teaching of an undergraduate drama course which figures as a compulsory course within teacher education course, as part of the program Music, Drama and Dance, 5 ECTS. It is taught every other year, and as a result, some students take the course during their second year while other are one their third year.

The drama teacher educator was the main researcher in the study. In addition, the teacher educator, in conjunction with the research partner, reviews her
practice through the lens of a reflective practitioner. Data was collected in the school year 2016 and 2017. Nine student teachers participated in the study during the first year, and eight student teachers in the second year.

Data was collected through video observations, interviews, a research journal and a blog post written to the research partner. The main researcher used a research journal to document her reflections and thoughts in relation to the research process. Her intention was to capture every aspect of the classroom activities and to achieve this she videotaped the classroom each time drama-teaching strategies were used. The videos were then used as a reference point, which the researcher and the research partner could apply in the study of the learning process. The research partner proved important in terms of understanding of the research process as whole, providing insightful feedback, and raising questions and critical viewpoints on the work throughout. By adopting the lens of the reflective practitioner researcher, and aided by the research partner’s feedback, the main researcher was able to view the entire process from a different perspective. The analytical process was carried out concurrently throughout the research period using the qualitative procedures of content analysis, coding and constant comparison (Wolcott, 2005).

4. FINDINGS

The self-study process began by focusing on a teacher educator’s teaching, in order to discover more diverse ways of developing drama teaching methods, and whether the process will lead to the teacher researcher strengthening her teaching practice. One of the challenges was to find means to support the student teachers to connect their theoretical backgrounds with their everyday practical experiences when teaching drama.

**Question technique**

Good questioning techniques are beneficial for teachers, for example, when the teacher wants to explore the students’ learning process disseminate material or lead students in certain directions in the learning process. Question techniques figure as important teaching strategies in drama, and I have emphasised this approach throughout my teaching career as a drama educator. It therefore arrived like a “bomb” when a student teacher said the following in one of the drama lessons:

> You are always talking about using open questions, but I am uncertain how to do it. You [the teacher educator] use it in our drama, but I am afraid of doing it myself (teacher student in class).

When I observed the videotape of the lessons it became clear that there was a gap in relation to this issue. I, as the teacher educator, repeatedly talked about
the importance of using open questions but did not give the students enough opportunities to practice the strategy. The data revealed my confusion, I thought I had covered this matter sufficiently, but in my journal I wrote: This strikes me, I am in a confusing situation (teacher educator's journal). To my research partner I wrote:

This made me aware of the importance of allowing my students to communicate more with each other. Talk together, it doesn’t always have to be me who talks and explains! Next time I have to encourage them to come up with questions, talk about them and reflect. Which questions relate best to the subject for the kids? Talk about it. It is good to create space for conversation, I think I don’t give them enough time for that (teacher educator, blog post).

A discussion with the research partner helped clarify what I had to do. We reflected continuously on how I was presenting the drama teaching methods and how I had to work with students in order to become a resourceful teacher:

It seems that you are not reflecting enough on your own teaching. Are you always thinking of what you want them to learn? Take your time; try to do it differently next time (research partner, blog post).

To respond to this comment I prepared the next drama lessons carefully. In class, I talked about the importance of using open questions in drama, because then the students would be given the opportunity to express themselves on the subject using their own choice of words. Furthermore, I rehearsed the questioning technique more frequently and gave the teacher students opportunities to rephrase and considering each question carefully while bearing in mind the learning outcome for their students. I realized that this would take a long time, I had to rehearse and rehearse again and dwell on the lesson program:

This is becoming normal for me, but I always have to stop and reflect and see what could be better. Is this an endless story? (teacher educator, blog post).

I was grappling with the pedagogical problem in practice, that is, giving student teachers enough space, sometimes with success, sometimes less effectively. In spring 2017, we noticed a progress in the questioning techniques of the student teachers. They seemed to have become more confident in both using open questions and using different questions for different purposes:

In my practice teaching in the school Hlídaskóli, I realized I used a lot of open questions when teaching drama. I just realized it when I came home and I was writing everything down (a student teacher, interview).
As can be seen in the interview with the student teacher, she was gaining more and more confidence with the questioning technique, however, the fact did not become clear to her until she had reflected on her teaching as she wrote her teaching journal. Through my own experience, and through the student teachers’ experiences, I am increasingly learning how important is or teacher empowerment to reflecting on your own practice and keep a journal to document the process.

Self-efficacy
When using drama with student teachers, it is important to engage them in the drama process with interest and belief. Given the fact that educational drama demands the student teachers’ active participation and cooperation, they have to believe in it and at this point the teacher educator enters with her mission. Teacher’s who experience self-efficacy have positive attitudes towards changes in education, and they are also likely to set goals and have strong aspirations in their work. The teacher educator’s practice is therefore important. I made serious efforts to influence the student teachers with positive attitudes towards drama, but I didn't always experience success. That is why it was pleasant when one of the students said in class: This is unbelievable, I feel something real in the drama. I am moved! I know this is an imaginary world but still I feel. I like this! The other students were laughing because the student exclaimed this is a loud voice, she was honest and moved and felt she had to tell the others. However, for the other students, the drama process was not as transformative. It led to a deep discussion about how drama affects the learning of students.

The same student teacher continued: I know this is just an imaginary game, but why is it so strong? Why am I feeling such strong emotions?
I tried to explain: Perhaps it is because knowledge is constructed through interaction with others, you are working with others in the drama. You are building on your own feelings at the same time as you experience new feelings.
Still confused, the same student teacher added: But I still can’t understand.
I had to explain in a better way or use another teaching method: Is it possible to connect with a theory, for example social constructivism?
The student teacher was getting frustrated:
I know it is a theory that affects our cognitive development, and it says that you develop socially through interaction with others.
I continued, struggling to explain: Through the drama process earlier could that theory be related to what we were doing?
The student teacher: Well, we were naturally interacting socially in the drama. Yes, oh, I understand.
A discussion like this can be beneficial having a pedagogical conversation with the student teachers. However, only one student was engaged in discussion
with the teacher educator while the other student teachers were listening, who then took part in the conversation at a later stage.

As I analysed the video with my research partner I noticed that the other students participated more than I had realised when the conversation was actually taking place. Their physical participation in the drama, as they shook their heads, moved their bodies, and kept their eye contact with us, indicated that they were following us. Yet, I realise that I could have given the other student teachers more opportunities to participate by asking them questions, such as: What do you think? Or what is going on in the drama? I also realise that in doing so I could have lost the moment and the interplay with the particular student teacher who was engaged in the activity. There is always a fine line, and I will never know which approach had been the best, and this is what makes teaching so exciting. In the conversation I tried to help the student teacher to connect practice with theory and it can be seen in this example how difficult it is for student teachers to do that. This is something that I need to continue to work at.

During the process, the drama teacher came to realize that she had to spend more time reflecting on the interplay of teaching methods and practice. In this way, the student teachers acquired opportunities to seek authentic experiences, which provided rich learning opportunities. The self-study resulted in a marked difference in the teaching approaches, where the teacher educator was more reflective, and more open to how the student teacher learned. Thanks to the self-study methodology, the teacher educator received support in making productive changes in teaching drama, and she also arrived at a better understanding of the assumptions that underpinned her practice.

5. CONCLUSION AND DISCUSSIONS

The academic life of teacher educators is complex, lonely, and personally demanding, given that University faculty enjoys little time to engage in dialogue with colleagues about research and teaching practice (Hadar & Brody, 2010). However, by conducting self-study, we are opened up toward a forum for collaboration and a dialogue about teaching and research. As teacher educator’s benefit from reflecting on their teaching and it can be beneficial in improving and developing their work in general. Similarly, reflective teaching methods can be vastly fruitful in relation to teacher education, in terms of students’ development and the knowledge they gain. Student teachers who reflect regularly throughout their period of study, with or without teachers’ aid, leads to new perspectives in learning (Vieira & Marquez, 2002; Evelein & Korthagen, 2015). One of the aims of my teaching is to support student teachers to connect theory and practice. In so doing, I have focused on the student teacher experiences and practical problems and helped them to
analyse their practice through pedagogical theories. The learning community created in the drama lessons gave the student teachers the necessary space for discussions and reflections.

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“IT IS IMPORTANT TO LOOK INTO OWN PRACTICE”
DEVELOPING TEACHER EDUCATION PEDAGOGY IN DRAMA


Am I a teacher educator? Search of self identity

Manpreet Kaur

Partap College of Education, Ludhiana, Punjab, India
moneypreet74@gmail.com

ABSTRACT
This is an exploratory study which explains the process of development of self identity of teacher educators. Development of Teachers’ self identity is a complex process. Recently there has been an increasing interest in the concept of teachers’ identity. However, teacher educators’ self-identity seems to be still under researched. This attempt addresses the questions, who are the teacher educators? In what ways their identities develop? What is the role of pre-service education and workplace culture in development of professional identity in teacher educators? 18 teacher educators from different parts of North India were interviewed in this study having 8-16 years of experience. Findings of the research indicate that self identity of teacher educators developed in two different ways. Some teacher educators developed strong identities even before beginning their service (during pre service education) and have clear educational vision which helped them in the development of their identity as teacher educators. On the other hand, some teacher educator’s self-identities were not much developed in the starting of their career but their self identities gradually developed with their experiences, practice and professional development.

KEYWORDS: Teacher Educator, Self-Identity, professional development

1. INTRODUCTION
Quality of learners depends on quality of teachers who have a vital role to play in character building of the students and also preparing them to succeed in their lives. The role of teacher educators becomes even more important. There is much research available examining the professional development of teachers and the processes involved in the development of their professional identity but less attention has been paid to the identity issues of teacher educators who are key actors in the space of quality education. Teacher educators are people “who provide instruction or who give guidance and support to student teachers, and who thus render a substantial contribution to the development of students into competent teachers” (Koster et al., 2005). They are ones who are responsible for quality of teachers that go into schools that in turn directly impacts quality of education. There is a huge literature about the research on the curriculum, organisation and
pedagogy of teacher education but a few studies look at teacher educators (Murray and Male, 2005) and only a little is known concerning how teacher educators construct their professional identities. According to (Smith, 2005), teacher educators’ professional knowledge is expected to be more comprehensive, rich and extensive, both in terms of the specific subject matter taught and in relation to areas such as didactics, pedagogy and psychology ideally. Therefore, Teacher Educators have a dual role: to be producers of knowledge on education, learning and teaching, and to be educators of teachers. The above statement places the role of teacher educators above that of teachers and as being the primary driver of instilling context based tenets into the teaching profession. Thus the identity of teacher educators need to be define and researched to improve the quality of education. Cochran-Smith (2003) stated that the identity of teacher educators has to be defined before the professional development of teacher educators. But before we can begin to define identity of teacher educators we have to consider many aspect of the roles of teacher educators and understand and define teacher educators as a professional group. This article address the question who are teacher educators? In what ways their identities develop? What is the role of pre-service education and workplace culture in development of their professional identity.

2. THEORETICAL FRAMEWORK
The concept of identity is defined in various ways in the literature. It seems that the concept of professional identity is also used in different ways in the domain of teaching and teacher education. In some studies, the concept of professional identity was related to teachers’ concepts or images of self (e.g., Knowles, 1992; Nias, 1989).

Like teachers’ identities, the identity of teacher educators is construction of various aspects or facets (Klecka et al. 2008). Teacher educators are a specialized professional group with their own specific identity and their own specific professional development needs.

There is a historical lack of definition and relative lack of professional consensus about the nature and worth of what teacher educators do. It has often been said that teacher educators are somehow no longer real teachers and less than real academics. Their self image consisted of seeing themselves not less than a teacher or less than academic but as more than both (Davey, 2013). Their identity crisis, lay not so much in having a confused self identity as such, but was in their sense what they valued in themselves as professional which was not valued in them by others. While school teaching and teacher education share the same sense of ecological connectedness of pedagogy and
unity of teaching and learning, teachers educators have greater commitment than school teachers in embodying and articulating those connections.

A recent review of international research on teacher educators (Lunenberg, Dengerink, & Korthagen, 2014) shows that there at least six roles that teacher educators have to fulfil: teacher of teachers, researcher, coach, curriculum developer, assessor and broker. Thus the process of development of identity is more complex in case of teacher educators.

The self-identity of teacher educators develops within the social, political and historical context in which they work and, as a result, the professional development of teacher educators is shaped by their personal motivation and initiative as well as by the possibilities and impossibilities of the context of teacher education (Swennen et al 2010).

Murray and Male (2005) suggested that it takes two to three years for teachers coming into higher education institutions to establish their new professional identities as teacher educators, experiencing the biggest challenges in the area of pedagogy and becoming research active.

3. WHO ARE TEACHER EDUCATORS?

Teacher educators form a heterogeneous group (Lunenberg, 2010). Therefore, it is no surprise, that the European Commission offers a broad definition: “Teacher Educators are all those who actively facilitate the (formal) learning of student teachers and teachers” (2013, p. 8). This includes those involved in the continuing professional development of teachers as well as those involved in Initial Teacher Education. However, the profession of Teacher Educator is understood very differently in different countries, and even within the same country or the same institution. As European Trades Union Committee for Education (ETUCE, 2008) has pointed out the various profiles of teacher educators include:

- academic staff in Higher Education who are teachers of education
- academic staff in Higher Education who are teachers of school subjects
- other teachers of didactics or general courses
- researchers in education
- supervisors of practice in schools closely linked to initial teacher education institutes
- trained and experienced teachers supervising practice in other schools
• tutors (counsellors, coordinators, mentors, guides etc.) supervising prospective teachers at the “on-the-job” qualifying phase
• supporters in the “on-the-job” qualifying phase network.

Teacher Educators are, thus, a very heterogeneous group. They:
• work in a variety of environments (e.g.: in a school or group of schools; in a university faculty of education; in another university faculty [mathematics, chemistry, arts...], in a non-university institution, or in the private sector, etc);
• come from different educational backgrounds; some may have started their professional careers as school teachers, others as educational researchers, others as (for example) chemists or mathematicians. It is therefore not uncommon for a teacher educator to possess no basic or specific qualification;
• have different levels of qualification (graduate, post graduate, doctorate...) in different subjects and
• possess different types of competence like teaching, educational leadership, research to different degrees.

Different kinds of people share responsibility for educating teachers, but it cannot be taken for granted that they share the same levels of commitment to teacher education, the same ideas about quality in teaching, or a common system of professional identities. Research evidence is only starting to emerge, but it suggests that different teacher educators adopt very different – and often multiple - professional identities “We found four sub-identities of teacher educators in the literature: teacher educators as school teachers, as teachers in higher education, as researchers and as teachers of teachers (or second-order teachers).” (Swennen et al, 2010).

4. METHODOLOGY
4.1 Participants
In contrast to other countries, in India to become a teacher educator no school experience is compulsory, after completing any teacher education course (Bachelor in Education or Diploma in Elementary Education) for school teachers and Masters degree in any school subject it is necessary to complete Master of Education (M. Ed.) to become teacher educator. After completion of M. Ed degree teacher educators have to go through an exam and get certificate of NET (National Eligibility Test) to teach in teacher education colleges.

18 teacher educators (12 women and 6 men) working in colleges of Education of different parts of North India were interviewed in this study having 8-16 years’ experience. The youngest participant was 36 years old and the oldest 52. Six participants (5 women and 1 man) are experienced school teachers. Participants reported that their main tasks were to teach student teachers,
supervise them during their teaching practice, participation in curriculum development and research.

4.2 Data collection
Semi-structured interviews were conducted for the exploration of various aspect of development of self identity. The interview scheme entailed questions that addressed biographical data, tasks, traits of teacher educators, ways of development of their self – identity, challenges in the development of self identity, suggestions for development of self-identity of teacher educators. Interviews were face to face and lasted between one and two hours. The reports were prepared and then analyse and summarized the data. Samples of the collected data were shared with colleagues in other research fields to verify the analysis and conclusions drawn and as a check against bias. The validity of this analysis was also increased through the further analyses of the summary and interview reports by two other experienced teacher educators who are the member of National Council for Teacher Education (NCTE), regulatory body of teacher education in India. The purpose of the research was fully explained to the participants who were invited to take part in the research. All data was anonymised and presented in such a way that no individual teacher could be identified. They were only tagged under the alphabet from A-R.

5. RESULTS
Participants were asked to recall the period of their pre-service teacher education course (M. Ed.) and their induction period to explain the development of their identity as teacher educators.). A number of challenges are reported by teachers in the transition from student teacher into becoming a teacher educator.

5.1 Experience and Mentoring
All the participants had a strong sense of their identity as a teacher. Teacher B had struggled to see herself as a teacher educator in the starting of her career as teacher educator. She recognised that the experience ‘actually made me feel a lot more confident about my ability as a teacher educator. My mentor helped me a lot during induction period she always offered support but with a lot of space for freedom and choice’. Four other teachers also found mentoring useful for the development of identity of teacher educators. Teacher F also experienced difficulties in his transition from teacher to teacher educator. He stated that ‘As a novice teacher educator I have to do everything and no one recognised that I was a beginner. I needed very much the support of someone I really could trust on, someone to whom I can ask all my questions, someone who can advice me or give me feedback’.
5.2 Transition from school Teacher to Teacher Educator
Teacher G who is having experience of school teaching felt difficult to recognise herself as a teacher educator by the end of the master of education course. She said that ‘school teaching is quite different from teaching student-teachers’ and we did not have any idea of pedagogy of teacher education in my Master of Education course. So in the initial years of my career as teacher educators I was confronted with various challenges like workload (many and very different tasks), coping with students with low motivation to become teacher and balancing between professional duties and professional development activities’.

5.3 Emergence of Self as Teacher Educator
Teacher C did recognise himself as a teacher educator both in work with student teachers and in his role as a Head of Department leading the professional development of colleagues. He said that ‘during my pre-service teacher education, I started seeing myself as teacher educator. I perceived my teacher educators as my role models and I always wanted to be at their place. Even after joining my job I asked for information and help from my colleagues, I observed them and reflect on my work with them.’
Analyses of the data indicated that the self identity of teacher educators developed in two different ways. Some teacher educators developed strong identities even before beginning their service (during pre service education) and have clear educational vision which helped them in the development of their identity as teacher educators. On the other hand, some teacher educators self identities were not much developed in the starting of their career but their self identities gradually developed with their experiences, practice, mentor support and professional development.
It is essential that teacher educators attend to the development of a professional identity in this role because as Wenger (1998:149) proposes: ‘There is a profound connection between identity and practice…. practice entails the negotiation of ways of being a person in that context’.

6. IMPLICATIONS/DISCUSSION
During the interview, participants were also invited to raise ideas on how to improve pre-service training and induction of novice teacher educators. Responses revealed that most participants felt that rigorous pre-service training which includes more time for supervision of teaching practice of student teachers and more interaction with them (delivering lessons and participating in various activities of student teachers) is very useful in the development of self-identity in beginning teacher educators. Teaching practice is the first time when teachers feel themselves as teacher educators, during teaching practice, not only professional, but also personal development takes place. It is a crucial
time when teacher educators’ professional identity emerges and thus the more focus should be on improving the quality of experience during teaching practice. Majority of participants concerned that during induction there should be a closer collaboration with colleagues. Mentoring is judged more or less helpful, dependent on the relationship between mentor and the teacher educator and on the frequency and quality of conversation. Most of the women participants suggested that family support is also necessary in the development of professional identity in women teacher educators.

7. CONCLUSIONS
Zeichner (2005) in his personal journey of becoming a teacher educator, illustrated that well how his transition from school teacher to teacher educator was informed by his: research into his practice, his students’ learning about teaching, and his desire for programmatic responses to his learning in ways that led to meaningful change. In many ways, Zeichner’s explanation of his journey offers insights into what it means to professionally develop as a teacher educator. This study also contributes in same lines and found that the development of professional identity is a complex process among teacher educators which includes their enthusiasm about profession, experiences, practice and support during induction. These results are also recommended by Ibarra (1991), who revealed that in the most of the research, researchers consider professional identity as a continuous process of the integration of personal and professional roles, relatively stable characteristics, beliefs, values, motives and experiences which teachers describe their professional career and work roles. Overall the study has illustrated that there is a need to understand the process of development of self-identity in teacher educators. Initial teacher education as well as workplace induction both should be planned in such a way that novice teacher educators are encouraged to develop themselves to

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Integrating Theory and Practice in Initial Teacher Education

Maria Inês Marcondes¹, Vânia Finholdt Angelo Leite², and Rosane Karl Ramos³

¹Pontifical Catholic University of Rio de Janeiro / CNPq
mim@puc-rio.br
²State University of Rio de Janeiro/Teacher Education College
vfaleite@uol.com.br
³Pontifical Catholic University of Rio de Janeiro/CNPq
rokarl35@yahoo.com.br

ABSTRACT
This paper presents PIBID (Government Grant Program for Initial Teacher Education), a Brazilian national program, as an alternative to integrate theory and practice in initial teacher education. The theoretical framework includes the concepts of reflective practice and investigation, critical thought, collective collaborative educational processes for the professional development of student teachers, and joint research and activities between universities and basic schools. We briefly present and discuss the document DCNs (National Curricular Guidelines) in its main proposals for initial teacher education, as well as PIBID, considered an important program to improve initial teacher education programs by stimulating practicum since the beginning of the course. Finally, we conclude with some remaining challenges and possibilities for initial teacher education in Brazil.

KEYWORDS: initial teacher education, reflective practice, PIBID

1. INTRODUCTION
This paper aims to discuss initial teacher education in Brazil by presenting PIBID (Government Grant Program for Initial Teacher Education - “Programa Institucional de Bolsa de Iniciação à Docência” in Portuguese), a Brazilian national program, as an alternative to integrate theory and practice in initial teacher education.

Firstly, we contextualize teacher education in Brazil. Secondly, we briefly discuss the 1997 Brazilian document DCNs (National Curricular Guidelines – “Diretrizes curriculares nacionais para formação inicial e continuada dos profissionais do Magistério da Educação Básica” in Portuguese), BRASIL 2015. The DCNs describe the key elements that should be present in any teacher education course in Brazil, and they also contribute to determining and/or suggesting curricular contents, theoretical frameworks, and procedures.

Thirdly, we discuss how the research dimension was integrated into initial teacher education in two university programs experiences in the country, which
presented some strategies to integrate theory and practice. Next, we briefly introduce and discuss PIBID as an example of a strategy implemented by the government so as to foster teacher education in Brazil. Finally, we conclude the paper by discussing the presented experiences and some of the challenges that we, as a nation, still have to face regarding initial teacher education.

2. THEORETICAL FRAMEWORK

The context of teacher work has changed due to educational reforms that have been implemented since the 1990s, both in Europe and in the United States of America, and have thus strongly influenced the Brazilian context (Zeichner, 2013). In the midst of these reforms, a new concept of professionalism has been evolved, which is present in various debates in the educational field and has also become a key concept in educational reforms in Latin America. The option for this concept is linked to the construction of the basis for a new ethos, a new identity and a new professional culture (Shiroma, 2000; Contreras, 2002; Severiens, Wolff and van Herpen, 2014). Such new professional culture, supported by the reforms, is a consequence of the new management (Ball, 2002; Naidoo et al, 2011) implemented by educational policies.

Besides, teacher education should be concerned with considering basic school teachers as knowledge makers (Sacristán, 1991; Pérez-Gómez, 2000; Tardif, 2002), and not simply somebody who reproduces and applies methods and techniques. For instance, Brazilian researchers Pimenta and Lima (2012) suggest a supervised practicum that links the socio-economic and cultural reality of the school and the theoretical activity. These authors propose research as a method or strategy in the education of student teachers, in which situations and real challenges in school would serve as basis for designing educational projects. Hence, student teachers would be able to create new knowledge since under this perspective, practicum would be used to enlarge their analysis of the school daily reality.

Another Brazilian researcher, Fiorentini (2012), suggests a supervised practicum in Mathematics that includes the creation of a research community. In Fiorentini’s study, the practice community is formed by a group of people that share the common goal to improve their teaching and learning practice in Mathematics in schools. To reach their common goals, teachers and researchers develop joint activities, like: readings, reflections, research projects, problem analyses, school practice on writing and narratives.

So as to discuss how the research dimension can be integrated into initial teacher education, we have based our paper on Saviani (2007), Hypolito and Ivo (2013), Leite (2013), Marcondes (2013) and Gatti (2014).
Both practicum proposals focused specifically on subject areas and supervised practicum within specific teacher education programs in Brazil. Nevertheless, in 2009 the Brazilian government launched the Grant Program for Initial Teacher Education—PIBID (Programa Institucional de Bolsas de Iniciação à Docência in Portuguese) that intends to include initial teacher education programs throughout the country regardless their subject areas. It will be presented and discussed in the next sections.

3. METHODOLOGY

This paper is the result of a qualitative research based on a literature overview on the themes reflective practice and investigation, critical thought, collective collaborative educational processes for the professional development of student teachers, and joint research and activities between universities and basic schools.

We have based our paper on data presented in:
(a) articles and papers published by the research groups that have developed experiences with practicum in two Brazilian university programs (Fiorentini, 2012; Pimenta and Lima, 2012). These experiences, despite being designed for a particular educational environment, had an innovative aspect by proposing and implementing a reflective practice;
(b) documents and research reports (Gatti et al, 2014) on PIBID, which also integrates theory and research but in a broader level (nationally) and aiming at various subject areas (two of the authors have been working with practicum in initial teacher education for a long time, and their universities take part in PIBID as well; however, this paper aims to present and discuss this Program nation wide, having as its basis the papers, researches and documents already mentioned)

From the data gathered, this paper aims to present a broader perspective of how practicum is currently implemented in Brazil for initial teacher education.

4. RESULTS

Brazil is the largest country in Latin America, the only Portuguese speaking one, whose population is of approximately 200 million inhabitants distributed by 26 states and its Federal District. These states and cities are distributed in five regions, which are: North, Northeast, Center-East, Southeast and South. Not only do such regions have very different features, but also different levels of development. This diversity, produced especially by different levels of economic development, also reflects in educational issues. Education in Brazil is a very heterogeneous and complex matter for the different regions. Teaching has not evolved equally in all five regions, and thus, traditional teaching
methods live with more contemporary ones, deepening the great gap between educational systems within the country. The Diretrizes Curriculares Nacionais para Formação Inicial e Continuada dos Profissionais do Magistério da Educação Básica (DCNs) (National curriculum guidelines for initial and in-service teacher education for Basic Education professionals) is a set of proposals that guides universities and higher education institutions to organize their curricula, trying to diminish this huge difference among the regions of the country.

Teacher education programs in Brazil prepare teachers to work in basic education, which comprehends pre-school, elementary school, high school, young adults and adult education, education for people with special needs, technical schools, indigenous education, country/rural education, quilombola education (for those Afro-slaves descendants that live in protected communities called “quilombos”), and at distance education. Besides, initial teacher education programs must consider that student teachers will deal with children, teenagers and adults from various social, economic and cultural backgrounds, that they have heterogeneous interests and motivations, and different habits and behaviours.

The DCNs define the principles, teaching and learning conditions, and educational procedures that must be attended to by the higher education institutions when making their curricula. The document argues that initial teacher education must take place through theoretical-practical studies, investigation and critical reflection. The DCNs propose an investigative attitude by which the student teachers must read and analyse educational researches throughout their courses, trying to develop their critical sense and capacity to observe the evidences produced in the investigations and researches in order to improve their future teaching ability.

PIBID (Government Grant Program for Initial Teacher Education) was created by Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (Capes) (Capes is one of the major Brazilian government agencies to foster scientific and scholarly researches and projects), in 2009. PIBID has as its mains objectives to stimulate and value teaching career, and improve the process of teacher education for basic education in all regions of the country, especially public education. It is mainly achieved by improving and stimulating the education of student teachers enrolled in higher education institutions nationwide by providing financial support (grants) to the participants (student teachers, school teachers who supervise them, and also the IES coordinators) (IES: Anacronym in Portuguese for Higher Education Institutions).

PIBID deals with teaching projects designed and proposed by each participant IES, which are then developed by student teachers in public schools under the
supervision of both basic education teachers and university supervisors (teacher educators).

5. DISCUSSION
In contrast to the perspective of the culture of performativity and the new management (Ball 2003, 2012; Naidoo et al, 2011) logic in education, some universities have developed courses and programs that aim to prepare future teachers to become researchers of their own teaching practices and not just aim to enable them to implement a policy or any other performativity act currently present in most public schooling systems in the country. The concept of a reflective teacher influenced both the DCNs and PIBID.

Two experiences that happened in Brazilian universities before the creation of PIBID used the principles of reflective practice in their teacher education programs. One was researched by Pimenta at Universidade de São Paulo (USP) in 2002 and the other by Fiorentini at Universidade Estadual de Campinas (UNICAMP) in 2012.

In these two cases, new proposals of practicum tried to establish partnerships between university and basic school, making the teaching practice a locus of investigation, and also considering the basic school teacher as a knowledge maker (Sacristán, 1991; Pérez-Gómez, 2000; Tardif, 2002). For such, Pimenta (2002), Pimenta and Lima (2012) and Fiorentini (2012) propose that the student teachers observe situations and problematic issues in school, and based on these they prepare a project to help them understand and elaborate the observed situations. The research thus conducted by the student teachers is a search for new knowledge building based on existing explanations, and relating them to observed real data, proposing new explanations.

The dichotomy between theory and practice has been by and large responsible for the distancing between university and school (Gatti, 2010). This dichotomy refers to the positivist perspective in which practice is understood as theory applying: the university is regarded as the locus of theory making and studying, and the school as the context of practical application of the theory. Such perspective does not acknowledge practice as knowledge making and producing, as well as it does not acknowledge school and practical work as loci of learning. It is largely responsible for the different professional status between teacher educators and school teachers.

The innovation presented by PIBID, however, is that this program was created with the intention to comprehend initial teacher education programs throughout the country and diverse subject areas.

When PIBID was launched, the priority areas were Physics, Chemistry, Biology and Mathematics to high school level, due to the lack of teachers in these specific subjects. Nevertheless, as the first positive results of the program
started to come, as well as the growth in demand and new educational policies to enhance teaching, the program has comprised all basic education levels, including adult education, education to Brazilian indigenous peoples, country/rural education and education in quilombos.

Since 2013, private non-for-profit IES all over the country have been integrated in PIBID as well, which is a new regulation mark in the program. However, the grants awarded by Capes/PIBID have no relation with the regular curricular practicum of the student teacher in his/her course: they are different categories of practicum. PIBID is an optional program, which depends on the acceptance of the student teacher into the program by the programs’ own rules; it broadens the opportunities for the student teachers, but it does not include the total amount of teacher educators or student teachers, whereas regular curricular practicum is compulsory to all higher education students who intend to become teachers.

The grants have made it viable that teacher educators, and basic school teachers got involved in the teacher education of the student teachers, supporting and guiding them both in planning and supervising their lessons. The student teachers have had the opportunity to live a teacher education experience based on a collaborative culture and team work. Such experience comes close to what some researchers (Canário, 1994; Nóvoa, 2013; Tardif, 2002) contend about the professional education and learning that should take place where practices are a fact, that is, in schools.

Nevertheless, we highlight the fact that receiving these grants is a privilege to few student teachers, which may divide and differentiate the quality of the teacher education course among students within the same course, and in the same institution.

6. CONCLUSIONS

We have presented two Brazilian experiences and a government Program that successfully connect theory to practice in initial teacher education. It is important to stress that there are differences in conditions and realities when we discuss initial teacher education in Brazil, and most often than not, they make the teaching career unattractive to younger generations, and even those who choose the teaching career feel discouraged from undertaking it. PIBID, amongst other experiences, has improved student teachers’ experiences and development, graduating rates and number of new teachers working at schools (Gatti, 2014).

The National Curricular Guidelines suggest a theoretical, interdisciplinary and research-based education. Initial teacher education should also prepare future teachers in such a way that they can base their pedagogical work on a critical
reflective approach so that they may become a transformative, intellectual
teacher (Giroux, 1988). Student teachers should thus be stimulated to reflect
beyond solely practical teaching issues or purely theoretical ones in an
integrative manner.
The association between academic investigation and investigative practice can
provide a guided framework (Toom et al, 2015) based on actual classroom and
school environments. We strongly assume it as part of the solution for the
improvement in the Brazilian quality in education.
As far as challenges are concerned, we stress the pursuit of a wider
collaboration with basic schools in order to make them active partners in the
teacher education of future teachers, as well as to bring forth the essential
contribution of school teachers and supervisors to the creation of new
knowledge and new researches that may develop further integration. We also
stress the fact that, in the case of PIBID, despite the many improvements it
has brought, the program fails the principles of equity and social justice due to
the fact that it is grant oriented, and there are not enough grants to the huge
number of student teachers who might need one to go on with their
undergraduate programs. Therefore, alternative programs that follow the
PIBID paradigm but that are not based on grants should be pursued by initial
teacher education programs.

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INTEGRATING THEORY AND PRACTICE IN INITIAL TEACHER EDUCATION


The practicum model in Teacher Education studies of the University of Girona: connecting theory and practice

Mariona Masgrau-Juanola¹, Víctor López-Ros², Josep Maria Serra-Bonet³, and Margarida Falgàs-Isern⁴

¹University of Girona
mariona.masgrau@udg.edu
²University of Girona
victor.lopez@udg.edu
³University of Girona
josepm.serra@udg.edu
⁴University of Girona
margarida.falgas@udg.edu

ABSTRACT
We introduce a research that aimed to build bridges between theory and practice during the students’ internships at schools, helping them to use academic concepts and references to analyse their practical observations and initiatives at schools. The main goal of this project was to create and develop a specific model of practicum in order to provide these pathways for connecting theory and practice.

It was developed at the Faculty of Education of the University of Girona during the 2015-2016 course and involved 12 teacher education students, 12 school mentors from 5 different schools, and 4 university mentors.

With this aim, some pedagogical strategies were used. During the previous year, the students worked at the faculty with real practical situations in order to reduce the gap between theoretical knowledge and practical experience. During the practicum, a double mentoring model was applied: students were assessed by a school mentor and an university mentor and they were invited to analyse with them their observations and argue their decisions, using theoretical references. Although dialogue learning was the main strategy to promote reflection, both mentors wrote a record of each of these meetings and students and teachers also had to write a diary, in order to have data and analyse the impact of these meetings in the students’ training. First analyses show that this pilot model improves substantially the traditional model, since it promotes valuable reflections among students.

This Practicum model has been developed by the research project “The connection between theory and practice knowledge in pre-service teacher’s training: methodologies based on Real Practice Situations”, funded by AGAUR (Generalitat de Catalunya, Spain), which aims to improve the practicum model of the Teacher Education Studies.
KEYWORDS: practicum, dialogic learning, reflective learning, real practical situations

1. INTRODUCTION

This paper analyses the research project developed during the academic course 2015-16 at the Faculty of Education of the University of Girona in order to improve the practicum model of the Teacher Education Studies of the third grade students.

The aim of the project was to strengthen links between theory and practice during the training of Teacher Education students, especially during their practicums at schools. Therefore it was necessary to ensure reflexive processes by which students live and relate what they observe at school with what they have read in the literature or heard by experts, and discussed at university with professors and colleagues.

To achieve this complex goal, we designed different parallel academic strategies: the one we analyse in this paper is a double mentoring model during the practicum: students held regular pedagogical meetings with a school mentor and an university mentor in order to discuss relevant education issues raised from practical experiences. Both mentors used specific semiotic tools to help the students to produce depth reflection, connecting theory and practice. Mentors wrote a record of each of these meetings and students and teacher also had to write a diary, in order to have data and analyse the impact of these meetings in the students’ training.

2. THEORETICAL FRAMEWORK

One of the main concerns of the project was to avoid the wash-out processes of students that we have often detected during the internship of students at schools and that have also been described in the literature (Zeichner and Tabachnik, 1981p. 7-11). We conceive the wash-out processes as the radical substitution of theoretical knowledge by practical premises that students drive when they are introduced in professional contexts (the schools or other educational institutions). Veeneman and Korthagen also refer to this phenomenon as the transition shock, a concept that is defined as “distinct attitude shift during their first year of teaching, in general creating an adjustment to existing practices in the schools, and not to recent scientific insights into learning and teaching.” (Veenman, 1984, quoted at Korthagen, 2014, p. 408)

These authors outline that it is a severe and common problem after the pre-service teacher education, which has been analysed in studies from many different countries.
There is an important knowledge at schools that has to be apprehended by students. This particular knowledge, a know-how derived by the daily life experience at schools, is perceived by the students as an important and basic practical knowledge. This know-how sometimes has been systematized in internal documents but some others it is oral or even intuitive. Boaventura de Sousa Santos (2010, p. 33) claims that there has to be a postabismal thought that reconciles scientific knowledge and popular knowledge: “Como una ecología de saberes, el pensamiento posabismal se presupone sobre la idea de una diversidad epistemológica del mundo, el reconocimiento de una pluralidad de conocimientos más allá del conocimiento científico”. Martinand (1994) defends the concept of social practices of reference, with which other heterogeneous social practices are legitimated as generating sources of knowledge. But this know-how—which we consider of great value—has to be problematized and analysed by students.

We also consider that we must overcome this common dichotomous conception of the training (theory and practice) that students have. We must help them understand that theoretical contributions can also derive from the observation and analysis of practice, remove common denominators of empirical experiences so that they could be extrapolated to different situations, and be a permanent resource to review, discuss and improve their practical decisions.

Before starting our Practicum model, during the previous course, we explored to help students hybridize theory and practice using the real practical situations (RPS) (López, Serra and Vila, 2014). This educational practice is partially based on case studies, among other methodological strategies, but introduces important differences. Briefly, the main innovation is that a real situation is discussed together with the teacher that led it at class: she or he is invited at the Faculty to review the situation and the decisions taken. Therefore, the RPS constitutes a new option among the active and participatory methods that require students to apply knowledge and position themselves at the university classrooms. Professors must ensure that decisions are reasoned and argued: this allows them to conceive teaching as an action game in which we choose some paths while we decline some others that may also be interesting to be analysed a posteriori, in order to improve professional practice.

The second strategy used in the project to strengthen links between theory and practice was bet on clinical procedures and processes and on reflective practice (i.e. Perrenoud, 2004). So during the students’ internship we mentored the students regularly to discuss classroom situations, promote hybridizations between theory and practice, trying to integrate both as causes and
consequences of a process of continuous innovation in teaching. The dialogic learning was the main strategy to promote reflection and critical review of practical experiences: this pedagogical approach emplaces dialogue as a key resource for “the development of thinking, the formation of individual identity and the constitution of different communities of practice” (Renshaw, 2004, p. 1. It is also important to outline the importance of launching good questions by both learners and educators and make answers evolve and gain nuance. Therefore, the role of professors and teachers change substantially in these mentoring contexts, since both discuss horizontally: the professor explores the conceptions of the education (and society) of the student and offers him/her tools to review it periodically and critically; both rely on literature when they face complex issues confronting, these contributions with their immediate context.

3. METHODOLOGY

3.1. The pilot practicum model: towards a new design

The pilot experience we analyse was carried out during the academic course 2015-2016 and involved 12 teacher education students (who joined the research voluntarily), 12 school mentors from 5 different schools, and 4 university mentors (all of them with long experience as mentors of Practicums). The model included new didactic strategies before, during and after the internship with the aim to strengthen links between theory and practice.

During the previous year, the students worked at the faculty with real practical situations (RPS) in order to reduce the gap between theoretical knowledge and practical experience. This methodology, as we pointed out, invites students to discuss educational projects that have been carried out recently in kindergarten or primary classrooms at the university classrooms. Its main feature is that the professor and the teacher make a didactic transposition of the practical situation in order to select and provide materials (recordings, productions of the students) and good questions to be discussed with the students at the Faculty; and both of them (the teacher and the professor) attend the discussion session. This educational approach offers significant opportunities for reflection: (1) It enables students to merge academic knowledge with the knowledge derived from social practices of reference in a horizontal reflective dialogical way. (2) Teacher education students realise that even successful educational initiatives that have worked properly at schools can however be analysed, developed and improved. (3) Academic knowledge is put in check by certain everyday contexts and can be reviewed or clarified.

The ordinary practicum model lasts 270 hours at school in which the student has to observe core activities, work with the teacher, intervene in the
classroom, design and carry out a unit teaching. Each student has a school mentor, which guides him/her, facilitates the participation in teaching activities and gives feedback and support for the design and development of didactic unit. During this pilot practicum, a double mentoring model was added: students were assessed by a school mentor and an university mentor; they met with the school mentor weekly and the meetings with faculty mentor were held every two weeks; sporadically, the student also met with both mentors together; during the meetings they were invited to explain them their observations and argue their decisions, using theoretical references. Mentors enriched these discussions with theoretical references that had to be read or reviewed by students; and students were also invited to look up for new theoretical sources that gave answers to their concerns and interests, raised by practical situations at school. This way, we promoted reconstructive and critical analysis of educational action: We strengthen individual processes of observation classroom phenomena with other systematic observations and other parallel initiatives; and we aimed the students to persevere to resort to literature and documentation to prepare new interventions; *id est*, we aimed more elaborate strategies for professional reflection. Therefore, this pilot program provides specific periods for tutoring. Although spontaneous mentoring *ad hoc* is common and very useful, we also wanted to guarantee specific tutoring time in order to facilitate the in-depth dialogue and reflection, without haste.

Although dialogue learning was the main approach to promote reflection (and questioning the main strategy), both mentors wrote a register form of each of these meetings and school mentors and students also had to write a diary, in order to have data and analyse the impact of these meetings in the students training. Students also developed normally set tasks that had to be included in the final portfolio.

After the internships at schools, the research group has the aim to involve students in the design and implementation at Faculty of new real practical situations, to be debated with their colleagues. And the last step of the teacher training would be to make a situated research related to a problem or interest they have observed during their internship. This is the goal for the final grade essay: placing the student in the role of theory generator.

3.2. The research model: collecting data

The coordinators of the research and the subgroup who focused on this issue decided to collect data about the development and the perception of the tutoring system implemented through the following instruments:

A) A focus-group of students
B) A focus-group of teachers
C) Reflective diaries of teachers
D) Reflective diaries of students
E) Register forms of mentoring teachers
F) Register forms of mentoring faculty professors.
G) Register forms of meetings of the stakeholders involved in the research.

So far, we have analysed the data derived from focus groups, which were recorded, and analysed with the program nvivo11pro. The content analysis was performed using a system of inductive categories built from the contributions of the participants and by reference to discrimination categories and analytical dimensions (Gibbs, 2007), defined in the corresponding previous script of the focus-group. For the analysis of the focus-group of students, we used a system of six major categories within which there were also subcategories: 1. Assessment and experience during the practicum. 2. Tutorial system. 3. Observation. 4. Diary. 5. Didactic unit. And a transversal category: 6. Theory. Below we show the most relevant data descriptively.

4. RESULTS.
We describe some of the most important reflections on the new model derived from the students focus-group: First of all, students explained they have learned a lot during the practicum period, although they argued they would need more time to delve into its different challenges. With this model practicum, they got aware they do not have enough theoretical basis to intervene and change daily practice. However, after this practical period they value the theoretical knowledge in different ways: the fact of having experienced first hand some classroom situations arouse more interest in certain theoretical aspects covered at the Faculty and would allow them to collect new information regarding the issue and relate it better. This suggests the possibility of temporarily inserted faculty training and practicum placements.

They high value weekly tutoring, because the issues are addressed very differently than in the everyday conversations with the tutor at class. They outline that tutorials usually started from a practical fact observed and derived to a more general or theoretical issue. They selected these observed facts regarding theoretical aspects debated at the Faculty; in other occasions they were interested in debating specific issues in which they detected a large gap between what is suggested at the Faculty and what is carried out in the school. They also stress that the level of abstraction has aroused throughout the internship.

Most of them express that the design of a didactic unit is a boost for their practicum: it intensifies their involvement and the need for theoretical
references; they prefer to focus it in issues they have developed at Faculty and they recognize that they have problems to find and select new theoretical references for themselves.

On the other side, they value the task of writing a diary, especially when they are able to transcend description and use it as a tool for reflection. After the focus-group, researchers observed that students often have a general inaccurate and shared theoretical knowledge, but they are unable to identify the sources and review and update it critically.

5. IMPLICATIONS/DISCUSSION.
This pilot practicum evidences that professional reflection should be encouraged among future teachers offering them specific spaces and strategies. The tutorials are a good strategy: nevertheless it is important to untie them from organizational matters, and use prior scripts to establish and set in advance the topics that would be discussed and the methodologies to address them; it favours deep reflection and the connection between theory and practice. Moreover, the fact that all stakeholders -teachers, professors and students- had to make written records of these meetings meant to reflect back, sort it and value it: in short, it promoted a reflection of the reflection. So our model practicum intended as a contribution to the creation of a third space in Teacher Education studies: "hybrid spaces in preservice teacher education programs that bring together school and university-based teacher educator and practitioner and academic knowledge in new ways to enhance the learning of prospective teachers (Zeichner, 2014, p. 93). Moreover, this model shows important conceptual and methodological difficulties of great subtlety and nuance: The most important one is that the density of reflective dialogues with students (and among students) is not reflected in diaries or registration forms of students or teachers and professors. Orally the topics are dealt with much subtlety and richness of detail, and it is impossible to remember everything afterwards. In the written confrontation, the student is easier to write what is expected of him. Therefore, the richness of the model is not sufficiently reflected. That’s why the second phase of our research will be based on oral recordings of meetings and discourse analysis with quantitative and qualitative instruments.

6. CONCLUSIONS
Despite its shortcomings, the pilot practicum model, based on an intensive double mentoring to promote reflection, has helped students realize that theory and practice are down sides of the same coin. They have seen that
theory is not only use for their initial training but it is also important to keep on documenting their design and implementation of interventions and decision making observed during the internship and the professional life.

That’s why we consider we should move towards the development of reflective spaces and strategies that help students to hybridize theory and practice in order to build (and rebuild) their own model of educational practice. We therefore:

- Devote specific time to reflect during the initial training, discussing interventions and decisions observed at classes, sharing literature and discussing different points of view.
- Encourage interactions between practicum stakeholders: students, teacher of schools and professors of faculties, in order to share common concerns and work together for the improvement of the teacher training.
- Promote the development of relevant strategies for reflection: relate goals with the strategies deployed in the classroom and the learning outcomes: promote qualitative coevaluation; problematize daily decisions and assumptions, etc. Specific tools with this purpose are required by students.

This way, practicum periods would cease to be basically based on action, and would become periods when theoretical reinforcement ad hoc would be required in order to deeply understand what is being experienced and contrast what is being integrated as knowledge.

REFERENCES


PART II.

TEACHER EDUCATION AND COMPETENCIES: SOCIAL COMPETENCIES, PROBLEM-SOLVING COMPETENCES, AND PEDAGOGICAL COMPETENCIES
Initial training of future teachers of Secondary Education: an assessment of the pedagogical competences acquired

Marcos Cabezas¹, and Sonia Casillas²

¹Universidad de Salamanca
mcabezasgo@usal.es

²Universidad de Salamanca
scasillasma@usal.es

ABSTRACT
The basic competences in Compulsory Secondary Education, specifically the pedagogical ones, take on particular importance in the initial stages of teacher training. In this study, therefore, we assess the pedagogical competences acquired by future teachers of secondary education, in addition to reviewing the initial training they receive. Methodologically, the experimental design involved applying an instrument created ad hoc on a sample of future secondary education teachers in Castile & Leon (Spain) (N=173) who were students of a Master’s degree program in teaching. Forty percent of the sample were men and 60% were women; all of them were graduates of universities both from different parts of Spain and from other countries, and 50% stated they had previous teaching experience before starting the Master’s program. The results show that half of these future teachers consider that they had acquired the pedagogical competences taught to them throughout their initial training in the Master's program for Secondary Education and they gave a very positive assessment of the importance of receiving this kind of training considering their future as educational professionals. As our main conclusion we would highlight the great importance of generic training in pedagogical competences, and the relevance of this type of training for correct professional performance in teaching-learning processes. Finally, we propose a future study on the impact of this initial training, as well as its repercussion on the teaching to be done in secondary education classrooms.

KEYWORDS: competence, assessment, Secondary Education, teacher.

1. INTRODUCTION
The initial training of high schools has been, from its beginning to the implantation of the master who regulates that training in Spain, a controversial subject matter due to different reasons, but particularly because of those related to the arbitration of a scarce and inaccurate training. In the case of the starting training provided by the ICE (Institute of Educational Sciences) from the seventies onwards; they were responsible for the initial and continuous formation of secondary school teachers. Later, the CAP, Course of Pedagogical Aptitude, which only lasted for a short while, and, with the
university degree, was the necessary requirement to be able to attend the “oportunidades” to become a teacher at Secondary Schools, baccalaureate and professional training. However, “the lack of legal support, the scarce interest shown by the university and the governmental institutions, the lack of financial support, the eventual teachership and the widespread growth made CAP the course of eternal provisory” (Gutiérrez, 2011, p. 97).

The LOGSE Ley Orgánica de Ordenación General del Sistema Educativo (Organic law for organization of the educational system) in 1990 sets a change in the starting training of future teachers. Teachers will now include to their degree a CCP, Curso de Cualificación Pedagógica (CCP), course of pedagogical qualification of 600 hours, instead of the 300 hours of the CAP. The CCP focuses on professionalism and the importance to develop psycho-pedagogical and didactic contents; and also a practicum set at a theoretical level, with relevant training. The Real Decreto (general law) 1962/1995 foresaw a transitional period from CAP to CCP, thus the academic year 1996-97 could be set. However, the fact that the educational faculties could organise the CAP at the same time as CCP led to the establishment of this in autonomous communities, while others kept CAP, which lasted for a shorter time.

The CAP lasted until the year 2008-2009. At the end of 2002, the Ley Orgánica de Calidad de la Educación (LOCE) (Organic Law for the Quality in Education) was set with the intention, among others, to reform the beginning formation of Secondary School teachers through the TED, Título de Especialización Didáctica (TED), Title of didactic specialization, which could be obtained in a 2 years’ period with the objectives, aims and similar organization to the CCP. However, the Real Decreto 118/2004, which regulates this entitlement, did not take place, as it was foreseen in the academic year 2004-2005, to modify the calendar of application of LOCE. In 2006, with the proclamation of the Ley Orgánica de Educación (LOE) Organic Law of Education, the need to restore a psycho-pedagogical and didactic formation for the aspiring teachers was emphasized. This demanded, as in previous formulas, the acquisition of a disciplinary and academic formation in the corresponding entitlements. This moment coincides with the setting of grades and university postgraduate studies, promoted by the European Space in High Education, and this is also when they considered that to access the grade and fulfil a Master, it is a requirement for teachers of Secondary Education to obtain a grade.

From the academic year 2009-2010, during which this Master was set, many students have finished it at the University of Salamanca. The following section will focus on the organization and plan of studies, and later in the generic portion, that in which students should acquire the pedagogical competences needed to be able to speak about a “didactic knowledge of content” and also the acquisition of the known “practical knowledge”.
2. THEORETICAL FRAMEWORK

2.1. Teaching Plans

The “Máster de Formación del profesorado de Educación Secundaria Obligatoria y Bachillerato, Formación Profesional y Enseñanza de Idiomas” Master in Training of High School Teachers for Secondary School, Baccalaureate, Professional Formation and School of Languages” was regulated in chapter IV of the Real Decreto 1393/2007 of 29 October, which was developed after the Order/ECI3858. According to it there is a training of 60 credits ECTS orientated to the future teachers so that they develop all their competences of abilities required to the teaching activity (Gutiérrez, 2011; Valdés, Bolivar & Moreno, 2015).

The general objectives of the title answer to the different concept orientations about the training of Secondary School teachers that Marcelo (1995) refers to, in an attempt to professionalize accurately and systematically future teachers at the Secondary level. So, we can refer to an academic, technological, personal and practical-analytical training.

The following table reveals the distribution of the Plan of studies regarding ECTS credits divided by subjects, as the University of Salamanca proposed:

<table>
<thead>
<tr>
<th>Type of subject</th>
<th>Credits</th>
<th>Modules</th>
<th>Minimum prescribed by the Ministry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commons (Obligatories)</td>
<td>18</td>
<td>Generic Formation</td>
<td>12</td>
</tr>
<tr>
<td>Speciality</td>
<td>24</td>
<td>Specific Formation</td>
<td>12</td>
</tr>
<tr>
<td>External Practices</td>
<td>12</td>
<td>Practical Formation</td>
<td>12</td>
</tr>
<tr>
<td>Work End of Máster</td>
<td>6</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>TOTAL</td>
<td>60</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Distribution of the Plan of Studies by credits ECTS, for type of subjects

The modules of general formation and specific which are part of the Plan of Studies are divided in obligatory and optional subjects, all of them in a six-month term, of 3 credits each.

A particular aspect of the University of Salamanca is that obligatory subjects are organized in groups of 30 students, which means that one can assume 10 groups for 300 students to attend, the maximum number of students that can matriculate each year into the Masters programme.

The specific subjects of every speciality will be taught in groups for every subject and like a novelty, in the same faculties where the students have fulfilled their studies.
Regarding the module of practical formation, it contains 12 credits, organised in two periods: a first part of observation in the first semester, and a second one of intervention in the second one.

The work at the end of master (TFM) (6 credits) is orientated by a director and it has to be original and value “the start of innovation in education, didactic and research about teachership, integrated in one of the areas proposed in every speciality or area of knowledge” (Valdés, Bolivar & Moreno, 2015, p. 259).

2.2. Pedagogical competences. Revision of some studies

The works in our country are diverse because, in the last years, the process of implantation of the master in Secondary Education has been evaluated through studies in the case of particular universities. The research made by Zagalaz, Molero, Campoy & Cachón (2011), focusing on knowing the expectations at the beginning of the master by the teachers of the University of Jaen. The results show that all the dimensions considered will be taken into account in a positive way by the student; but those that have bigger punctuations are related to the didactic competences; that is, the expectations are focused on developing or improving their teaching skills and getting to know and practise all those aspects to become good teachers.

The research by Manso & Martín (2014) analyses the starting master in the Universidad Autónoma de Madrid (Autonomous University of Madrid) and the Universidad Pontificia de Comillas (Comillas University). The results show that students value the learning related to the specific didactics more than the general didactics, with pedagogical content.

The authors underline that in spite of the fact that the teachers of the master affirm that they felt more like teachers and with more abilities they continue to think that to be a good teacher is to know much about one’s subject; that’s why they keep seeing themselves as experts at specific didactic; something essential, as we know and sufficient in many aspects. The work of Valdes, Bolivar & Moreno (2015) evaluates the process of implementation in the master of the University of Granada, making a valuation of it from the analysis of 4 fundamental dimensions: structure, organization, teaching and practicum, among the multiple results obtained in this research we have to point out that:

A) Students ask how the master plan of studies implies the training of pedagogical practical-analytical and critical competences of teachers, while the development of the year is focused in an exposition class and the transmission of theoretical knowledge, on occasion very disassociate with the professional reality.

B) The training is formed following a continuous and consecutive format, where more academic knowledge is obtained through distinct materials and
subjects. Later other, more professional, through practicum and finally an investigation through the development of TFM.

3. METHODOLOGY.
The aim which is pursued is to evaluate the pedagogical competences acquired by future teachers in Secondary Education, to revise the initial training received by them, with the final goal being to check if that master which replaces the CAP (Course of Pedagogical Attitude) has implied a progress in their starting training. The aforementioned revision has been fulfilled in the first part of the research, thus we will focus on the evaluations of the acquired teaching skills. The aims related to this work are: determine the grade of acquisition of every competence and its level of importance, and verify if there is relation and meaningful differences between both objectives.

The methodology used is quantitative and has been opted for by a study on descriptive and inferential character, principally founded in basic statistics, in the use of bivared correlation and the proof T of Student for related samples; with the aim of checking the existence of statistically meaningful differences in the valuation about different dimensions evaluated in the generic competences. For the data collection, a questionnaire ad hoc was employed. This instrument counts with 7 dimensions: (1) identification data, (2) Motivations to fulfil the master, (3) Valuation of the general organization of the Master, (4) Valuation of the generic module, (5) Valuation of the teaching competences of the teachers who give the general module, (6) Valuation of the competences acquired by students in the general module (level of acquisition and importance) and (7) Expectations and proposal to improve; besides 74 indicators shared in a homogeneous way in every dimension.

For the design of the instrument a conceptual frame was adopted regarding the starting training of Secondary School teachers, which allowed us to describe and organise the dimensions and research which we have just described. The aim of the instrument is to obtain a valuation about the didactic and pedagogical formation of the future teachers in their starting university training. The original scale is composed by 5 items of personal type, 9 items in a yes/no scale, 60 Likert type, using many scales of answer of 3, 4, and 5 points: A) (1 = Totally agree / 5 = Totally disagree), B) (1 = None / 4 = all), C) (1 = Nothing / 3 = Much). For its validation a coefficient Alfa of Cronbach which value was 0.78 was taken into account, considering it an optimal level of reliability (George & Mallery, 1995).

The population object of study is made by a future of a group of Secondary School teachers who fulfil the master at the University of Salamanca. The type of sampling is based on probability and the final sample was constituted by 173
people, 60% women and 40% men, half of whom admit to have had previous experience. They come from 30 different universities national and international.

4. RESULTS
The more remarkable results are shown, referring to the analysis of the dimension 6 about the competence acquired in the generic module, object of study in this work. For the analysis of this dimension we are going to focus on two aspects:
- The level of acquisition of the competence
- The level of importance given to every competence
The competences to study are 19:
(1) I have acquired the competences proposed in this general module; (2) I am competent to apply the knowledge acquired to solve problems in educational context regarding your speciality; (3) I am able to communicate impressions, arguments and knowledge about a topic to specialised public and non specialised, in a clear way with no ambiguities; (4) I am competent enough to search, obtain and process and communicate information (oral, printed, audio-visual, digital, etc.), transforming it in knowledge that may be applied in the teaching and learning processes; (5) I know the regulations and institutional organization of the educational system, and the models of improvement of the quality that may be applied to the teaching centres; (6) Public services and communities which cooperate with the centre will be identified; (7) I know and I am able to analyse the historical characteristics of the teaching staff, their professional status, perspectives and interrelation with the social reality of every time; (8) I am competent to plan, develop and evaluate the process of teaching learning, individually or in cooperation with other teachers of professionals from educational centres; (9) I know how to analyse the organization and working of a centre to coordinate the personal orientation, academic and professional of the students; (10) I have learnt to design or develop learning spaces which pay special attention to rights equality and opportunities, the emotional and educational values, life in society and respect for human rights; (11) I am able to elaborate proposals which allow students to acquire knowledge, skills and intellectual and emotional skills; (12) I have strategies to stimulate the effort of students and their ability to learn by themselves and the others; (13) I know the interaction and communication processes in the class to be able to face discipline problems and to solve conflicts; (14) I am able to develop tutorial functions and orientate the students in an individual and cooperative way; (15) I have the abilities and necessary techniques to inform and assess families about the development process and learning of their children; (16) I know the psycho-pedagogical characteristics of
the students to evaluate them and submit the reports required; (17) I know the measures for attention to diversity that may be adopted to fulfil the necessary assessment in every case; (18) I know how to transform the CV in working and activity programmes; and (19) I have achieved acquire selection criteria to elaborate educational materials.

The future Secondary School Teachers positively value the importance of the exposed competences (table 2), with averages close to 3 (Maximum punctuation), with the exception of the competence 19, which was considered irrelevant ($\bar{X}=0.80$). These values contrast the ones obtained when they indicate their consecution level regarding the general competences, quite inferior as it can be observed. Thus, they consider that their acquisition level, though lower than the importance degree, has been the average level, with values between 1.35 and 2.07 out of 3 points.

Table 2: Acquisition and importance of competences of the general module

<table>
<thead>
<tr>
<th></th>
<th>Level of Acquisition</th>
<th>Grade of Importance</th>
<th>$\chi^2$</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{X}$</td>
<td>$S_x$</td>
<td>$\bar{X}$</td>
<td>$S_x$</td>
</tr>
<tr>
<td>1</td>
<td>1.56</td>
<td>0.59</td>
<td>2.66</td>
<td>0.50</td>
</tr>
<tr>
<td>2</td>
<td>1.73</td>
<td>0.63</td>
<td>2.80</td>
<td>0.42</td>
</tr>
<tr>
<td>3</td>
<td>1.54</td>
<td>0.66</td>
<td>2.86</td>
<td>0.35</td>
</tr>
<tr>
<td>4</td>
<td>1.37</td>
<td>0.55</td>
<td>2.86</td>
<td>0.35</td>
</tr>
<tr>
<td>5</td>
<td>1.79</td>
<td>0.64</td>
<td>2.86</td>
<td>0.36</td>
</tr>
<tr>
<td>6</td>
<td>1.74</td>
<td>0.67</td>
<td>2.56</td>
<td>0.57</td>
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<tr>
<td>7</td>
<td>1.55</td>
<td>0.64</td>
<td>2.56</td>
<td>0.55</td>
</tr>
<tr>
<td>8</td>
<td>1.73</td>
<td>0.60</td>
<td>2.35</td>
<td>0.61</td>
</tr>
<tr>
<td>9</td>
<td>1.90</td>
<td>0.64</td>
<td>2.89</td>
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<tr>
<td>10</td>
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<td>0.60</td>
<td>2.76</td>
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<tr>
<td>11</td>
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<td>12</td>
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<td>2.88</td>
<td>0.36</td>
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<tr>
<td>13</td>
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<td>0.65</td>
<td>2.90</td>
<td>0.34</td>
</tr>
<tr>
<td>14</td>
<td>1.53</td>
<td>0.57</td>
<td>2.90</td>
<td>0.33</td>
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<tr>
<td>15</td>
<td>1.70</td>
<td>0.63</td>
<td>2.90</td>
<td>0.36</td>
</tr>
<tr>
<td>16</td>
<td>2.07</td>
<td>0.68</td>
<td>2.83</td>
<td>0.39</td>
</tr>
<tr>
<td>17</td>
<td>1.35</td>
<td>0.54</td>
<td>2.92</td>
<td>0.31</td>
</tr>
<tr>
<td>18</td>
<td>1.97</td>
<td>0.71</td>
<td>2.86</td>
<td>0.39</td>
</tr>
<tr>
<td>19</td>
<td>1.93</td>
<td>0.73</td>
<td>0.80</td>
<td>0.46</td>
</tr>
</tbody>
</table>

On the other hand, there are significant differences between both dimensions (importance and acquisition) in 9 of the analysed competences (3, 4, 6, 7, 15, 16, 17, 18 y 19). And there is an inverse correlation in all of them, indicating that they consider more important those where acquisition was lower.
5. CONCLUSION/DISCUSSION

This work with the others (Valdés, Bolívar & Moreno, 2015; Cachón, López, Romero, Zagalaz & González, 2015; García, Pascual & Fombona; 2011; Serrano & Pontes, 2015), is framed within the pedagogical research that tries to assure the valuations of the future teachers in Secondary Education about the competences acquired in the master for that.

These teachers value the training and the importance of the competences from the pedagogical point of view in the general training programme.

As an exception, the one which deals with the acquisition of criteria to select and elaborate educational materials was considered not very relevant. Furthermore, they value at a medium level, the acquisition of these competences and consider that those most important are the ones that have acquired. Similar results to these are exposed in other works (Buendía et al., 2011; Hernández & Carrasco, 2012; Serrano & Pontes, 2015; Manso & Martín, 2014; Zagalaz, Molero, Campoy & Cachón, 2011).

REFERENCES


Strengthening social competencies and problem solving competencies in the children: early interventions

Anjali Shokeen

Assistant Professor
GGIPS University, Dwarka
Delhi, INDIA
anjalishokeen9@gmail.com

ABSTRACT
Social Competencies and Problem Solving Competencies are critical for the overall development of individuals. These Competencies help in self-awareness of proficiencies in performing various tasks, in recognising own strengths and weaknesses of the individuals. As all human beings are inherently social, therefore development of these Competencies helps in enhancing the ability to succeed in work place and in the society. Children having Social Competencies are more likely to have high self-esteem and have good relationship with peers that are associated with positive outcomes in the future also, like, in happy married lives or in successful careers. On the other hand, deficiency in competencies may cause bullying, delinquency or aggressive behaviour. Identification of early intervention strategies promote positive outcomes and reduces the occurrence of negative outcomes in the children. The core focus of learning is “well-being of the students themselves”. Students should be able to use their knowledge; understanding and skills to promote inter personal and societal well-being now and in the future. To accomplish this vision, one needs to consider different ways of developing Social and Problem Solving Competencies. The paper highlights the significant role of these Competencies in children for their successful life. The paper will also highlight different ways of building Social and Problem Solving Competencies in the children.

KEYWORDS: Social Competencies, Problem Solving Competencies, Interventions

1. INTRODUCTION
Researches in the recent years are increasingly focusing on the assessment of basic Competencies in the children .It has become more prominent especially at the international level in assessing the competencies. There is a wide spread consensus that the Social and Problem Solving Competencies are fundamental competencies for participation and employment in the society. Indeed development of these Competencies in childhood has become an area of interest for the researchers because these both have undeniable constructive role in shaping adjustment abilities in the future. There is growing recognition at all levels (local, state, national and international) that the schools must meet
the Social and Problem Solving Competencies developmental needs of students to reach their full potential. The greatest return on education investment should begin with nurturing non-cognitive skills i.e. giving social, emotional and behavioural benefits which lead to success in their later life. Policy makers and different documents consistently rank social and problem solving abilities amongst the most significant life skills. All nations are confronted with the fast pace of technological and societal changes which require Problem Solving skills at various levels. Sound strategic knowledge and Problem Solving abilities are required to organise complicated information and to deal and compete the goals potentially. Different communities acknowledge the role of efficient Problem Solving Competencies in social life. The core focus of the learning is the well-being of student themselves. Therefore, students should be able to use their knowledge, understanding and skills at present as well as in future to promote individual interpersonal and societal well-being. In USA, members of the Collaborative for Academic, Social and Emotional Learning (CASEL) suggested five core competencies that young children need i.e. Self-Awareness, Responsible Decision Making, Self-Management, Social Awareness and Relationship Skills. These competencies integrate Cognitive, Affective and Behavioral aspects of learning. (CASEL, 2008a; Weare & Gray, 2003). Students having social and emotional skills, earn higher (Welsk, Parke, Widaman & O’Neil, 2001) and also scores higher on education on standardized tests (Malecki & Elliot, 2002). Socially Competent children are benefitted from their ability to make friends and get along with peers. They have more friends and more connections with peers and they are less likely to be isolated, rejected or bullied, they frequently involves in school activities and also have better grades (Berndt & Keefe, 1995; Wentzel & McNamara, 1999). Social competence leads to improved relationships with peers and teachers (Wilson, 2004). Social Competencies play an important role in student’s achievement and adult wellbeing (See, Chien, Harbin et al. 2012).

2. PROBLEM SOLVING COMPETENCIES

Problem Solving is defined as self-directed cognitive-behavioural process by which an individual attempts to recognise effective solution for the specific problems faced in everyday life. It is considered as a coping strategy that increases general competence and adaption in real world settings. (D’Zurilla & Nezu, 1990). Problem Solving reduces maladjustment and increases adjustment positively in everyday life whereas ineffective Problem Solving results in psychological maladjustment and stressful outcomes. (D’Zurilla & Nezu, 2007). Problem Solving Competency is a person’s capacity to engage in cognitive processes to understand and solve problem where the solution is not obvious and there is willingness to engage in such situations to achieve
potential as a reflective citizen. It is capacity of an individual to engage in a process effectively, attempts to solve a problem by understanding to reach at the solution.

3. SOCIAL COMPETENCIES

As all human beings are inherently social, therefore there is need to develop and strengthen Social Competencies. These competencies enhance person’s ability to succeed in school activities positively which results in good mental health, success at work place as well as in the ability to be a good citizen in a democracy. (Ten Dam & Volman, 2007). Social skills not only help the individuals to succeed in their social lives but also in their personal, academic and in future professional career (Elias et al., 1997). It is increasingly obvious that learning is ultimately a social process (Dewey, 1916; Vygotsky, 1978).

Bierman (2004) defined Social Competency as the capacity to coordinate adaptive responses flexibly to interpersonal demands and to organise social behaviour in different social contexts in a way that it would be beneficial to oneself and uniform with social morals and conventions. There are four categories of Social competencies (a) Affective processes (includes Empathy, sense of belongingness, valuing relationships) (b) Cognitive processes (includes cognitive abilities, making moral judgements) (c) Social skills (includes asking appropriate questions, using appropriate language, making eye contact) and (d) High social self-concept.

4. PURPOSE OF THE STUDY

The main purpose of the study is to investigate the Social Competencies and Problem Solving Competencies of the sixth grade students and to suggest different ways to develop and strengthen Social and Problem Solving Competencies among the children.

5. METHODOLOGY OF THE STUDY

In the present study, the sample of 100 students was selected randomly from the four randomly selected secondary schools of Dwarka in Delhi. 25 students of sixth grade were selected randomly from each of these schools. Data was collected for the present research, by using two rating scales. The researcher developed the Rating Scale to know the Social Competencies and Problem Solving Competencies of the children. The researcher framed 12 statements in Social competency five point Rating scale i.e. Disagree A Lot, Disagree A Little, Neither Agree nor Disagree, Agree A Little and Agree A Lot. The researcher framed 24-item scale to assess children’s Problem-Solving ability by
examining the frequency of use of the skills that are needed to engage in Problem-Solving i.e. Identification of /Defining the Problem, Analysing the Possible Causes or Assumptions, Identifying Possible Solutions, Selection of the Best Solution, Implementation of the Solution and Evaluation of the Progress and Revise if needed. The researcher assigned 0 for Never, 1 for Rarely, 2 for Sometimes, 3 for and Often, 4 for Always. Higher scores in the scale indicate greater Problem Solving skills. Respondents were asked to rate each statement given in the Rating Scale and they were also made comfortable in responding. This was also assured to keep all responses very confidential. All respondents completed the Rating Scale during the class in 20 minutes.

6. RESULTS
The data collected was analysed and results showed that students Problem Solving Competencies are less productive. The results showed that there is lack of Problem Solving Competencies among students as the average score is 50%. Moreover, Social Competencies has also not been so developed. The result indicates that 56% children exhibit problem behaviours. Therefore, there is need to have early interventions to strengthen Social and Problem Solving Competencies so that children can have effective learning and have higher level of achievements. This would be helpful for an individual, the society and the nation at large. For the accomplishment of the same, the teachers must act as guide while working with each student.

7. INTERVENTION STRATEGIES TO STRENGTHEN SOCIAL AND PROBLEM SOLVING COMPETENCIES
The following are the intervention strategies to strengthen Social and Problem Solving Competencies so that they can be explicitly taught and strategically woven.

7.1 Building Competencies within the Curriculum Programme
Bickmore (2010) suggested that schools should consider further ways to cultivate experiences of caring, belonging, engaging questions of cultural diversity within the curriculum programme. She also focuses that Problem Solving is basic to all learning areas but curriculum approaches are under-utilized in schools to develop student’s ability. In the curriculum, citizenship should be explored in a way that it makes connections between the learning areas, values and key competencies.

7.2 Effective Teaching Approaches that build Social and Problem Solving Competencies
The research suggests that these competencies can be enhanced if they are explicitly taught rather than making assumption that they will be caught.
Payton et al. (2008) explored approaches that were offered to all students rather than a targeted group who needed extra support. Payton et al. reviewed initiatives which include building student’s social, coping and conflict resolution skills. They found that the initiatives showed positive outcomes. The most effective approach includes Sequenced set of Activities to develop competencies, Active forms of learning such as Role plays, Focus attention on Social and Problem Solving Competencies and Explicitly targeted particular skills for development.

7.3 Developing Social and Problem Solving Competence and Addressing Bullying Behaviors
Pepler et al. (2010) findings indicated that Bullying behavior stops faster when peers intervene. They stated that to promote pro-social behaviors like caring and helping, children needs to be aware of their own emotions and reactions i.e. Self-awareness is a foundation for undertaking other’s emotions. They caution that these skills are not developed spontaneously; students must be provided scripts about what they have to say and do. (Farrington&Ttofi, 2009) also suggested strategies like use of Co-operative Learning, Role Plays, and Use of Visual resources to promote discussions.

7.4 Building competencies through Democratic participation in school life
Hoffman (2009) considered focus on cultivating experiences of caring, community and belonging in the schools. This can be achieved by building competencies within the curriculum programme and other ways, by encouraging students to build a sense of community and belonging at schools. For this, students should be offered opportunities to strengthen their Social competencies in real life situations. They should be given opportunities to show their leadership and citizenship capabilities so that they can contribute in school and community activities. Social and Problem Solving Competencies can be enhanced by providing opportunities to democratically participate in school life e.g. Being members of student councils, by organizing school events, taking part in development of school practices and classroom decision making.

7.5 Parent Education Programs
Another way is to work with parents i.e. providing positive parenting strategies that will build their children’s Social competencies and Problem Solving Competencies. Research shows that children with lower competencies are more frequently found in families where parents engage in more conflicts, express more hostile parenting (Webster-Stratton & Hammond, 1999).
7.6 Teacher Training
Teacher training is an approach to prevent and reduce children behavior problems. They need to train in classroom management strategies that promote Social and Problem Solving Competencies. Studies showed that teachers training significantly enhanced children's school outcomes (Lochman& Dunn, 1993; Shure, 1994).

7.7 Child Social Skills and Problem Solving Training
Another approach to strengthen competencies is to directly train children in social and cognitive skills such as in Problem Solving, Friendly Communication, and Anger Management. (Coie&Dodge, 1998). The primary school age period would be a strategic time to intervene directly with children to facilitate Social and Problem Solving Competence.

7.8 Developing Critical Skills in children:
Learning to think critically is one of the most significant skills to strengthen Problem Solving Competencies among children. Opportunities should be provided by asking open-ended questions, by not intervening immediately, helping children to develop hypothesis, by encouraging children to express themselves, by providing a variety of problem-solving experiences, by providing open-ended play activities in long periods of time, by acknowledging children’s efforts, by reinforcing children solution, by fostering an “I can do it” attitude in children by giving accurate and specific feedback.

8. CONCLUSION
Overall, the researcher suggest that these interventions can lead to substantial improvements in teachers and parents interactions with children and ultimately to strengthen Social and Problem Solving Competencies. Researchers suggest that without early interventions, social and behavioural problems in children are the risk factors that mark the beginning of academic problems, School dropout, antisocial behaviour (Synder, 2001). Strengthening children's capacity to manage their behaviour and to make meaningful friendships, may serve as an important protective function of schools success. The primary school years are very crucial for developing as well as for strengthening Social and Problem Solving Competencies that will ensure success in Secondary, Senior Secondary School and in the later life. In these development periods, Social competency interventions which are interwoven by play methods will emerges as the most effective way for strengthening different competencies. Moreover, the development and implementation of interventions in childhood partnership enhance the relevance of representations of diverse cultures and socio economic background. For the successful implementation of Social Competency and Problem Solving Competency interventions, primary
educators and families should be actively involved. Children are natural problem solvers and they must be offered countless opportunities to develop Problem Solving and Social Competencies in early childhood settings where they may interact with one another, then only, they can play an active role in the world.

REFERENCES


Complex theoretical construction about the evaluation indicators of the permanent training plan of the teacher of the IUTPC

Katty Ramirez de Velásquez.

Instituto Universitario de Tecnología de Puerto Cabello, Venezuela
arqkattymaple@gmail.com

ABSTRACT
This research aims to generate a complex theoretical construction about the evaluation indicators of the teacher training plan of the IUTPC from the dialogue of the actors, to promote their human development, oriented in the paradigm of complexity and taking into account the knowledge and actions of the actors involved. Justified in the promotion of a new ethical, moral and spiritual hegemony in the training and qualification of the Venezuelan university teaching staff, compatible with the Plan of the Homeland 2013-2019. The research scenario is the University Institute of Technology of Puerto Cabello and the applied methodology is the action research, techniques of participant observation and in-depth interview, supported in phenomenology-hermeneutics for the categorization of emerging conceptual categories of reality object of the study that reveal the evaluation indicators. In conclusion, the construction of indicators and evaluation activities of the Teacher Training Plan must be constructed from a complex thinking, to holistically embrace each variable and dimension involved in the process, and to be able to learn, build and transform the context in which they are developed. But above all, to create a space that allows, in addition to the practice and evaluation of knowledge, to unite the feelings of the actors in an individual and group way for the achievement of their human development.

KEYWORDS: Evaluation indicators, training plan, human development

1. INTRODUCTION
The challenges imposed by the creation of evaluation indicators for university education in order to achieve a proposal for a change in the evaluative approach for the contribution of human development is a theme of great academic and political interest at the global level, since the Universities are the cornerstone of a country’s development and human potential. From this point of view, it is inferred that the university institutions are those indicated to build and contribute to the development of a country and its people, through its external and external integration with the teaching community and society, therefore, the issue of indicators of Evaluation of university education is of
great importance for the promotion of human development, and the need to study them has now become evident; But through a form that is closer to its actor, from the teacher who creates and constructs the teaching, from the reflection of the complex thinking, so that it has an evaluation from a constructivist vision, complex, that allows a new way of evaluating University education. 

According to this vision, Picado (1990), affirms that the indicator is the evidence of obtaining the result, the change, the achievement that is sought to achieve with a program or a project. The indicator is a criterion that allows to evaluate that change. According to this postulate, the construction of evaluation indicators for the teacher training plan of the University Institute of Technology of Puerto Cabello, must be based on this fabric of values, means, coexistence, behavior and interests, for the achievement of human development.

In this respect, development is not necessarily synonymous with economics, because it is not solely due to the monetary factor, but also that it is beyond materiality, influencing the "being" of the individual, that way of behaving and acting with others Pairs in a personal and spiritual development, which shows the need to systematize the processes of monitoring, control and evaluation of teacher training in lifelong learning, using indicators to measure their achievements.

2. CONTEXT AND PARTICULARITY OF THE TEACHER TRAINING PLAN

Within the framework of University transformation, the IUTPC has implemented the Teaching Training Plan to cover the academic learning needs of the staff, with the objective of forming part of the National Teacher Training System promoted by the Ministry of Popular Power for University Education, Science and Technology, governing body of Venezuelan higher education. The Teacher Training Plan requires to be evaluated periodically to provide scenarios where the level of knowledge reached by the teacher is shown, his / her attitude as a multiplier agent of knowledge, his / her interest in being trained, as well as to evaluate the costs that are generated in its applicability, And the necessary resources for this, which justifies the present investigation. The arguments mentioned above lead to the following question: How to interpret the cognitive domains that the teachers have, on the evaluation of their permanent formation, that collaborates with the creation of the evaluation indicators?
3. THE STATE OF THE THEORETICAL, REFLECTIVE, CRITICAL ARGUMENTS OF THE TEACHING TRAINING PLAN

The teacher of the IUTPC is a teaching professional, the highest percentage of teachers (76%) were not trained to be career university teachers, so the Teacher Training Plan seeks to strengthen and unify criteria for their academic training, Based on four essential dimensions of training (university culture, socio-political development, educational process and research), but this plan needs to be evaluated. For this purpose, evaluation indicators need to be constructed to evaluate the crystallized actions of the Plan to achieve follow-up Of its effectiveness and achievement of the goals set.

In this respect, the conceptual definition of an indicator according to Babbie (1986), indicates that the indicator demonstrates the presence or absence of the concept being investigated; Which means that the indicator shows the degree or intensity of the dimension studied.

On the other hand, the evaluation guide of social programs and projects of the NGO Platform for Social Action (2003) points out that the evaluation instruments ... are a means for evaluation and not its purpose, with indicator evaluation being an evaluation strategy, ... where such indicators must be quantifiable and verifiable, through quantitative techniques and / or qualitative procedures (p.28-29); Meaning that the evaluation indicator will facilitate the search for answers to the questions and evaluation objectives to identify the changes made and the impact of the Teacher Training Plan.

4. METHOD, DESIGN, TYPE AND SYSTEMATIZATION

The methodology to be applied is Action Research; Martínez (2009), states that the subjects investigated are genuine coinvestigadores, participating actively in the approach of the problem that will be investigated (that will be something that affects and interests them deeply). Which means that the investigated teachers are active researchers of their own actions, with the purpose of knowing, interpreting and transforming reality to study; Of this reality are collected the data that are later articulated in empirical derivations leading to the creation of the indicators of evaluation of the Teacher Training Plan. The applied research techniques are participant observation and the in-depth interview, proper of this design, which justifies the field design qualification.

5. PRELIMINARY UNITS AND CATEGORIES OF ANALYSIS

The construction of the indicators is conceived from the categorization of which the evaluation indicators emerge. In this regard, categorization; According to the dictionary of psychology ... is a cognitive process that induces
the regrouping in the same class of objects or persons of the same nature. Similarly, Rodriguez, G. et al. (1999), emphasize this aspect when referring that among the tasks of reduction of qualitative data, possibly the most representative and at the same time the most habitual are categorization and codification. Meaning that the categorization allows in a practical and concise way, to establish the constitutive praxeological categories of the model in use in the construction of the indicators and actions of evaluation and the different ways of seeing the reality on the part of the actors.

<table>
<thead>
<tr>
<th>SPECIFIC GOAL</th>
<th>UNIT OF ANALYSIS</th>
<th>CONCEPTUAL DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyze the theoretical and epistemological foundations of the Teacher Training Plan</td>
<td>Theoretical and epistemological basis</td>
<td>State of the art theoretical, reflexive, critical and argumentative of the Teacher Training Plan</td>
</tr>
<tr>
<td>To discover the praxeological categories that constitute the model of the Teacher Training Plan</td>
<td>Model in use of the Teacher Training Plan</td>
<td>Practical categories constitutive of the Teacher Training Plan in the construction of indicators and evaluation actions.</td>
</tr>
<tr>
<td>Interpret the authors’ conception about the Teacher Training Plan and unveil the evaluation indicators</td>
<td>Theoretical Conception for the creation of evaluation indicators of the Teacher Training Plan</td>
<td>Conceptualization of the cognitive domains of teacher training and creation of evaluation indicators.</td>
</tr>
</tbody>
</table>

Table 1: Identification of specific objectives and unit of analysis.

6. PRAXEOLOGICAL CATEGORIES CONSTITUTING THE TEACHER TRAINING PLAN IN CONSTRUCTION OF INDICATORS AND EVALUATION ACTIONS

Categorization is used to unveil the computer elements of the dialogue and establish the units of meaning, determining the categories of the questions, identifying referents, and establishing some units of meaning that guide the process of content analysis, as indicated in the following Table No. 2:

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>ASPECT OR REFERENCE</th>
<th>ASPECT OR REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>How was your income, what motivates you and how important is it for you to participate in the Teacher Training Plan?</td>
<td>Social mediation of actor behavior</td>
<td>Information, guidelines, doing. Identity, job satisfaction</td>
</tr>
<tr>
<td>What are the most appropriate strategies to improve participation in the activities of the Teacher Training Plan?</td>
<td>Perfection, operation of the Teacher Training Plan?</td>
<td>Contributions, strategies, information, model in use</td>
</tr>
<tr>
<td>Identify strengths, weaknesses, opportunities and threats that you perceive when implementing the different initiatives or activities of the Teacher Training Plan? How does it work, explain?</td>
<td>Strengths and weaknesses of the Teacher Training Plan?</td>
<td>Identification, feasibility, obstacles and resistance to participation in the Teacher Training Plan?</td>
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</tr>
<tr>
<td>Do teachers have a substantive change in the ways of making and feeling the Teacher Training Plan? According to how it works, how do you feel it and see it?</td>
<td>Policies of the Teacher Training Plan?</td>
<td>Value judgments, the knowledge and feelings of the actors</td>
</tr>
<tr>
<td>How do you perceive your relationship with the different players in the activities related to the Teacher Training Plan?</td>
<td>Process of integration and participation in function of the Teacher Training Plan?</td>
<td>Knowing and doing, information, objectives, contributions</td>
</tr>
<tr>
<td>After implementing the Teaching Training Plan?, in general terms How do you evaluate the performance of the interdisciplinary evaluation committee at present?</td>
<td>Significant aspects of teaching activity</td>
<td>Information, objectives, justification, contributions, evaluation</td>
</tr>
<tr>
<td>According to your experience, what comment, criticism and opinion do you have regarding the Teacher Training Plan?</td>
<td>Contribution on the actions of the Teacher Training Plan?</td>
<td>Actions and actions aimed at generating teacher training</td>
</tr>
</tbody>
</table>

Table 2: Units of meaning and reference

7. CATEGORIZATION OF REFERENTS THAT TEACHERS OF THE TEACHER TRAINING PLAN

Objective 2 was supported by the IUTPC Teacher Data Update Day, 2015; And from there are built references, emerging categories and indicators, as indicated in the following Table No. 3:

<table>
<thead>
<tr>
<th>CONCERNINGS</th>
<th>EMERGING CATEGORIES</th>
<th>INDICATORS</th>
</tr>
</thead>
</table>
| Social mediation of actors' behavior | - Integration policies  
- Knowledge building  
- Dialogue between actors  
- Social capital | Social Mediation  
Peer awareness  
Teacher training |
| Perfection, functioning of the Teacher Training Plan | - University Mission  
- Education for change  
- Sense of identity and belonging  
- Interaction Networks | Rules  
Divulgation  
Responsibilities |
8. CONCEPTUALIZATION OF COGNITIVE DOMAINS OF PERMANENT TEACHING TRAINING AND CREATION OF EVALUATION INDICATORS

The specific objective Nº 3, is interpreted from the hermeneutics through a polyhedral dynamic of mathematical modeling, used to unveil in seven theoretical axes, the emerging indicators of the referents addressed from the perspective of complex thinking.

8.1. Theoretical structure structurer "social mediation of the behavior of the actors"

The dialogue of actors emerges as a center of social mediation from the freedom of thought, exposing their needs, ideas and reflections in order to create agreements, alliances and strategic networks in a more solid way; The indicator social mediation, to measure that level of agreements and alliances that the Teaching Training Plan generates, with the aim of creating a university opening with a critical attitude about social reality.

On the other hand, the emerging category of integration policies appears as the connection between institution and teachers, through its strategic axes teaching, research, extension, community service and the own management of the Teacher Training Plan.

Table 3: references and categories emerging from the evaluation of the teaching training plan

<table>
<thead>
<tr>
<th>Resources in the implementation of the Teacher Training Plan</th>
<th>Financial resources</th>
<th>Human Resources</th>
<th>Security</th>
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<tbody>
<tr>
<td>- Budget Factor</td>
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<tr>
<td>- Opening Forms</td>
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<td>- Social Security</td>
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<tr>
<th>Teacher Training Plan Policies</th>
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<tbody>
<tr>
<td>- Team work</td>
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<tr>
<td>- Sensitize the individual</td>
</tr>
<tr>
<td>- Critical, reflexive and investigative process</td>
</tr>
</tbody>
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<tr>
<th>Process of integration and participation of the Teacher Training Plan</th>
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<tbody>
<tr>
<td>- Protagonist participation</td>
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<tr>
<td>- Shared social learning</td>
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<tr>
<th>Significant aspects of the teaching activity</th>
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<tbody>
<tr>
<td>- Freedom of thought</td>
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<tr>
<td>- Evaluation from the actors</td>
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<tr>
<td>- Social Commitment</td>
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<tr>
<th>Contribution on the actions of the Teacher Training Plan</th>
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<tbody>
<tr>
<td>- Meaning construction</td>
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<tr>
<td>- Exchange of knowledge and actions</td>
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<tr>
<td>- Adequate organizational climate</td>
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<thead>
<tr>
<th>Philosophy of the plan</th>
<th>Lines of investigation</th>
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<tr>
<td>Participation</td>
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<td>Motivation</td>
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<td>Scope</td>
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<th>Evaluation</th>
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<td>Communication</td>
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<td>Thread Tools</td>
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<th>Research</th>
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<td>Application</td>
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<td>Multiplication</td>
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<th>Thread Tools</th>
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<tr>
<td>Contribution on the actions of the Teacher Training Plan</td>
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<td>-----------------------------------------------------------</td>
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<td>- Meaning construction</td>
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<tr>
<td>Multiplication</td>
</tr>
</tbody>
</table>

Table 3: references and categories emerging from the evaluation of the teaching training plan
Equally, the category social capital, reveals that the social development that is intended to be achieved with the Teacher Training Plan, is based mainly on man along with knowledge, as the main resource to achieve the country's human development, which includes the increase of Riches, greater purchasing power, better living conditions and the internal enrichment of their being, thinking and acting towards others. These approaches reveal the peer knowledge indicator, which will allow us to measure how knowledge has been constructed, through the exchange of knowledge with other actors, meaning that the construction of knowledge among peers, must be approached from a complex, multi and transdisciplinary view. Therefore, it is necessary to have the teacher training full-time indicator, since to measure the extent to which the institution's permanent staff has prepared and participated in the training plan, will allow activities that increase the level of participation of these teachers, such as Main actors of the educational foundations of future graduates of the institution.

8.2. Theoretical structure structurer "perfection and functioning of the teaching training plan" The Standards indicator emerges to evaluate the applicability and functionality of the Teacher Training Plan and to recognize the extent to which education for change increases the sense of identity and the belonging of teachers to create and strengthen their human development. It is necessary to build networks of interaction based on the integration of the actors and on the dissemination and implementation of the Teacher Training Plan to achieve its implementation. Therefore, the disclosure indicator is a key piece, allowing to measure the level of applicability of the knowledge acquired. This determines the importance of establishing the accountability indicator to measure the level of commitment, solidarity and cooperativism present, and thus avoid imbalances that tend to end the development and progression of the Teacher Training Plan.

8.3. Theoretical structure structurer "resources in the application of the teacher training plan" The budgetary factor is of vital importance in the implementation of the Teacher Training Plan, in order to execute the projects and training plans, as well as the integration and unification of the efforts of the different actors, to reach strategic agreements that guarantee their application. Therefore, the Financial Resources indicator would measure the relevant aspects of the financial reality of the execution of the plan to know how its applicability happens. On the other hand, while the State rests the financial resources, the Teacher Training Plan does not release itself from creating new forms of openness that
allow it to form economic networks that help to satisfy and guarantee the budgetary needs of the latter.
Likewise, the indicator Human Resources is presented, to measure the internal and external human resources to the institution to impart such plan.
Social security also emerges; In Venezuela is not a mystery that we suffer from a high crime rate, which is detrimental to any activity, but having the Security indicator, to know the security levels of the context where the Plan is developed, is a strategy to ensure That the alternatives of solution aim to overcome the adversities.

8.4. Theoretical structure structurer "policies of the teaching training plan"
The Teacher Training Plan should study group work to clarify the actions and strategies to be implemented to create indicators and evaluation activities that effectively and safely address this new educational reform that proposes a transformation that goes beyond content, Because it represents the very philosophy of the training plan.
This means having the indicator Philosophy of the plan, to establish the relationship of objectives between the Teacher Training Plan, and those of the plan of the country, that allow to measure the consonance between objectives. On the other hand, the category of sensitization of the individual appears as a present necessity in the policies of the Plan, managed through the direct contact with the reality, experience and problematic, as well as the critical, reflective and investigative process, in agreement with the lines of Investigation of the institution; In this way the achievements of the objectives of the Teacher Training Plan and the plan of the homeland are unified in a common purpose.
Therefore the indicator research lines, is necessary to allow to measure the articulation between the different contents and objectives of the aforementioned plans.

8.5. Structuring axis "integration process and participation of the teaching training plan"
The Teaching Training Plan represents a shared social learning that allows to be involved in the educational social reality, to give effective answers when integrating in part of that context, being the main protagonist participation to generate such changes.
It means that the participation indicator is required to measure the level of attendance of the teaching staff of the institution, contribution, contribution and social responsibility assumed, to unveil its commitment and action in the achievement of the objectives. Likewise, the motivation indicator is present to measure how encouraged the teacher is to participate in the Teacher Training Plan, to measure their responsibility, their level of solidarity, commitment,
fellowship, cooperation and co-responsibility as an actor and benefactor of their own development.
Within this frame of reference, the scope indicator is present to measure the characterization of the goals achieved against the planned ones, which will allow to understand and construct the reality of the context, and to be able to do the interventions, reforms, transformations, projects and activities of evaluation that respond to the social and human development that seeks to achieve the Teacher Training Plan.

8.6. Structuring theoretical axis "significant aspects of teaching activity"
The Evaluation indicator is unveiled in order to evaluate "from" the individual actors and their level of training, individually and in groups. Likewise, freedom of thought comes into play, which determines in the individual his individuality, but in turn is permeated with sociability, meaning that an individual is able to decide by himself to make changes and also, can unify criteria in group in order to achieve such transformations.
With regard to this, the evaluation from the actors generates a collective commitment that is liberating rather than binding, which is not a brake, chain or repression to the individual or group, on the contrary, that social commitment that generates a need where the Individuality is intertwined in a space with others.
This means that the communication indicator will allow to measure the communicative level and thus favor the commitment to social changes, as well as the indicator tools to measure, identify, generate, share and analyze information that allows to establish priorities and develop other evaluation activities to improve the efficiency of the plan.

8.7. Structuring theoretical axis "about the haceres of the teaching training plan"
Trim the multiplier indicator, to measure to what extent teachers become spokesmen of their own training; By becoming multipliers of knowledge teachers make constructions of meanings about their reality by fostering the exchange of knowledge and actions between the scientific and popular knowledge of all actors.
On the other hand, the Research indicator emerges to recognize the lines of research of greatest influence and the degree of motivation of the teacher in each one of them.
In this respect, the application indicator appears to measure the levels of applicability of what has been learned and investigated by the individual within his teaching activity.
Finally, all the mentioned indicators and evaluation activities will be possible if there is an adequate organizational climate that builds the necessary conditions.
in order to achieve the common objectives and to enable the teachers to realize how each of them, in individually or collectively, are key agents of their own development.

Next, graph No. 1 is presented, with the conceptual holographic vision of the theoretical axes structuring the Indicators of evaluation of the Teacher Training Plan.

![Conceptual holographic vision of theoretical axes structurers of the evaluation indicators of the teaching training plan](image)

**Figure 1**: Conceptual holographic vision of theoretical axes structurers of the evaluation indicators of the teaching training plan

9. CONCLUSIONS

It is established that the Teacher Training Plan does not only deal with the scientific-academic knowledge to be imparted, since its scope must transcend the university walls to society, where it is reconfigured in a social learning shared by man, so it must be based on The paradigm of complexity, allowing the dialogue of authors and actors in the search for shared and participatory learning, to achieve the objectives of the Plan. In conclusion, generating a complex theoretical construction on the evaluation indicators of the Teacher Training Plan.
Training Plan is the first step, to ensure the success of the teacher training process.

REFERENCIAS


Development of professional skills on teaching practice: student teachers’ and mentor teachers’ views

Hana Horká¹, and Jana Kratochvílová²

¹Department of Education, Faculty of Education, Masaryk University, Brno, Czech Republic
horka@ped.muni.cz

²Department of Education, Faculty of Education, Masaryk University, Brno, Czech Republic
kratochvilova@ped.muni.cz

ABSTRACT
The aim of the study is to highlight the meaning of reflection and self-reflection in the situational context of student teaching practice. In connection with the reflective model of teacher training, attention is focused on students and mentor teachers as two individuals who assess the level of students’ professional skills in the final dialogue. The individual chapters deal with the clarification of the values of reflection / self-reflection as a type of feedback which allows systematic consideration of the particular experience of a student in dealing with teaching situations.

The research is based on empirical investigation, the aim of which was to find out how students’ and accompanying teachers’ views on the development of students’ professional skills develop over three semesters based on specific experience gained during teaching practice and what the differences in their values are. The basic research sample consisted of 71 students of the full-time master’s degree programme for teaching at primary school. The research was conducted using an evaluation sheet of our own design, which was completed by accompanying teachers and students, and which they discussed together based on arguments. A quantitative research approach was used in the data processing.

The results indicate that the marginalization of self/reflection is not justified, as it represents an important tool providing authentic and individually focused feedback as a means of targeted intervention in teaching practice. At the end of the study suggestions for improving the quality of work with a (self) evaluation tool are presented to all interested parties.

KEYWORDS: professional competence; professional self-image; evaluation; self-evaluation; practical training; reflection; self-reflection; reflective model; (auto)assessment tool; accompanying teacher

1. INTRODUCTION
Increasing research interest in professionalization within initial teacher education is justified, as it is effective, especially in familiarising ourselves with, "a person in the role of a student teacher" and at the same time it gives
education faculties "an opportunity for authentic and individually targeted interventions" (Svatoš, 2013). Our goal is to help answer questions asked by pedeutology related to: (1) the stages through which a student teacher passes from the professionalised start to completion of their initial training; (2) The indicators which can show that they are "becoming a teacher." The students gain the experience with mentor support, they learn to accept the role of a client in the mentoring process and take over the responsibility for managing their own learning.

2. THEORETICAL FRAMEWORK: REFLECTION AND SELF-REFLECTION AS A WAY OF LEARNING THROUGH FEEDBACK IN A SITUATIONAL CONTEXT

The justifiability of acquiring professional knowledge in an active way on the basis of a critical examination of one’s own actions and experiences is illustrated by the theoretical concepts of the teacher as a reflective practitioner (Schön, 1983; Atkins, 1993; Slavik, 1993; Kim, 2010; Korthagen, 2011 etc.). The overarching concept of our research is professional skills as a dispositional and evaluative construct. It includes reflective skills, characterized as the "professional disposition to recognize (see) and in professional dialogue to reflect on what is essential in teaching, how to assess it and what improvements to suggest" (Slavik, Lukavsky, Najvar, Janik, 2015, p. 6). The ability develops in the initial training through professional dialogue with the mentor teacher. In controlled reflection on the teaching reality students and teachers learn to systematically see professional performances in different contexts, to observe them, compare them with the qualitative requirements for the professional activities of teachers in assessment tools, and to evaluate them. Heteronymous evaluation (teacher evaluation) is linked with autonomous evaluation (evaluation of students) through dialogue between teachers and students, which contributes to a more realistic image of oneself. There is thus an ongoing double dialogue (1) a student’s dialogue "with himself" about the assessment tool, (2) a dialogue with the mentor teacher about the current state of the development of the professional skills, coupled with the arguments of both parties. The mentor teacher plays the role of "significant other" (Mead, 1934), and thus leads the student to define objectives and plans for self-development.

3. RESEARCH METHODOLOGY

The survey described in this paper builds on research conducted in the academic year 2014-2015 (Horka & Kratochvilova, 2016). Is based on an empirical investigation, the aim of which was to find out how in the course of three semesters the view of students and mentor teachers on the development of professional skills of students develops based on specific experience gained during individual teaching practice and what differences in their assessment
Development of professional skills on teaching practice: student teachers’ and mentor teachers’ views

can be found. The research questions were selected in accordance with the theoretical definition of professional skills in the introduction. In this paper, we focus on the sub-questions:

a) "What is the difference between an autonomous assessment of the professional skills of a student and a heteronomous assessment of the mentor teacher in the 9th semester?"

The research question is of considerable importance to us, because in the 5th year of studies teaching practice is carried out in primary schools where the students live. This means that the role of the mentor teacher is taken by a teacher who does not have direct contact with the faculty and during the teaching practice they follow some written instructions.

b) How does students’ view on the development of their professional skills develop over three semesters?

As a research tool, we chose an evaluation form of our own design with 31 items that represent the required professional skills. Their narrow focus and large number affects the reliability of the tool, which was verified by Cronbach's alpha. The items of the individual factors met Cronbach's alpha value above 0.7.

We put emphasis primarily on professional didactic and psychodidactic skills (8 items), diagnostic and interventional (5 items), social, psychosocial and communicative (7 items). Managerial and normative skills (4) and teaching skills 4 items, and subject-specific (3) [Classification of skills is based on the model of the creation of professional standards for teachers (Vašutova, 2004)].

The assessment tool exists in two forms: as a self-assessment tool for students, for their independent evaluation (quality criteria are named in the first person singular: I give the pupils free choice and as an evaluation tool for the mentor teacher (heteronomous evaluation) with the formulation in the 3rd person singular (the student gives the pupils free choice Entries are evaluated on the instrument on a five-point scale of 5 (definitely yes), 4 (probably yes), 3 (in part, neither yes nor no), 2 (probably not), 1 (definitely not).

At the end of both versions of the tool there is some space for students and teachers to give more free responses to the items: positive, strengths in teaching; weaknesses in teaching; weaknesses in teaching; suggestions for personal development. In the subsequent semester, this personal goal is reflected on.

In accordance with the internal gradation of professional preparation and taking on the role of mentor teacher as a facilitator of reflective practice after
our experience with the research in the 7th and 8th years of the study when searching for answers to the research questions we set (Horka & Kratochvilova, 2016) the hypothesis that between the student's assessment and the mentor teacher’s assessment in the ninth semester there is no statistically significant difference (H1). For confirmation or rejection of this hypothesis we chose statistical processing using the non-parametric Wilcoxon rank test. Based on the ordinal nature of the data, we compared the median rating for all items. You can see these in the box charts.

To compare the evaluation of the development of professional skills of the students themselves, we set the hypothesis that in 75 percent of cases, there would be significant differences in the autonomous evaluation of the student at least between two semesters. As it is a matter of dependent ordinal variables, we compared them using the non-parametric test for three or more samples, specifically the Friedman test. The independent variable is the number of the semester and the dependent variable is the student’s assessment. To describe how the distribution of the assessment of teaching practice by students changed during the semester, we used box plots.

The basic research sample consisted of 71 students of the full-time Master's degree programme for teachers of primary school. An evaluation sheet of our own design was used to collect the data, and it was completed by mentor teachers and students who had a discussion about it based on arguments. In the data processing primarily a quantitative research approach was used.

Students who did not give in a completed evaluation sheet in one of the semesters were excluded from analysis of the data (e.g. students living abroad under the Erasmus scheme), or students who had not completed some of the items. Overall, 44 sheets were statistically processed (43 women, 1 man). The assessment and self-assessment sheets for the 9th semester of study were evaluated and the results were compared with data generated in the 4th year of study (i.e. in the 7th and 8th semesters). In order to get a "picture" of the development of the professional skills of students, we used all available statistical units (evaluation of students and mentor teachers) and for their assessment we used inductive statistics, which allow us to draw general conclusions.
4. RESULTS: COMPARISON OF THE ASSESSMENT OF PROFESSIONAL SKILLS OF STUDENTS AND TEACHERS IN THE 9TH SEMESTER IN RELATION TO THE 7TH AND 8TH SEMESTERS OF STUDY

From the results obtained on teaching practice in the fourth year (i.e. in the seventh and eighth semesters) when comparing the heteronomous and autonomous evaluation of professional skills we discovered significant differences in 37 cases in the seventh semester (71%), and in 27 cases in the eighth semester (54%). From the data analysis, it was evident that most commonly the heteronomous assessment of the student by the mentor teacher is higher than the student’s autonomous evaluation.

The difference in value judgment is shown with an example of student 41, where the median value and 50% of the evaluable professional skills were evaluated higher by the mentor teacher than by the student. The student assessed himself with a maximum of grade 4, while the teacher mostly used grade 5. Out of the research sample we only noticed one student (2) whose assessment was more positive than that of her mentor teacher.

We were interested in whether there were differences between the autonomous and heteronomous evaluation of professional skills of students in the 9th semester of their studies, when the role of mentor teachers is taken on by teachers with less experience. Since these are dependent ordinal variables, we proceeded as in the previous year and used the non-parametric Wilcoxon rank test for evaluation of the data. We assessed the autonomous and heteronomous evaluation of students of the 9th semester.

To display the differences in the assessment we again used box plots.

From the research results in the 9th semester we see that when comparing the heteronomous and autonomous assessment of professional skills of all the students tested, there are significant differences in 28 cases (64%). From analysis of the data it is evident that in most cases the heteronomous assessment of the student is higher than the autonomous one. Therefore, hypothesis H1 was not confirmed.
If we focus on the average (median) we find that in 21 student-teacher pairs (almost half) there are the same values: in 15 cases values of five, and in six cases values of four. This testifies to conformity of the evaluation of professional skills by both sides in half of the research sample. In 21 pairs (student-teacher) the difference in the median value is one grade (on the scale 4-5), with the teachers giving better assessments than the students. Only in two cases is the median higher amongst students than teachers (students 31 and 5). Also, only in two cases (students 6 and 18) does the mean value of the median differ by two grades between the autonomous and the heteronomous evaluation (on the scale 3-5). We will show the view of autonomous and heteronomous evaluations of professional skills with several significant cases that impressed us with their results in the 7th and 8th semester.

Student 41:
To review, student 41 gained a higher value by one grade for the median value and evaluation of half the professional skills by the teacher in the seventh and eighth semesters compared to the student assessment, as shown in Figure 2. In the ninth semester (Fig. 3), the two evaluations became closer. The median in both cases is evaluated with grade 5, and half of the items are evaluated closely. The student still used a wider range in the autonomous assessment.
It is interesting to follow the evolution of the average values for the student over three semesters. Based on the p-value of Friedman's test (p < 0.05) in Table 1, we can say that the evaluation of the student in the 7th and 8th semesters is significantly different statistically. From the data there is an obvious gradual increase in student professional skills (Fig. 4). There is also a reduction in the range of grades used on the scale. While in the 7th semester the student used a range of 2-5, in the 8th and 9th semester she used a range of 3 to 5. Gradually the median value increases and we can say that in the ninth semester this student considers 50% of the items around the median as definitely or more or less mastered.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Friedman’s ANOVA (ANOVA χ² (N=28, sv=2) = 23.73819, p=.00001)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean rank</td>
</tr>
<tr>
<td>Student41_7</td>
<td>1,589286</td>
</tr>
<tr>
<td>Student41_8</td>
<td>1,767857</td>
</tr>
<tr>
<td>Student41_9</td>
<td>2,642857</td>
</tr>
</tbody>
</table>

Table 1: Autonomously evaluation of student 41 in the 7th-9th semesters
Boxplot

Figure 4: Comparison of the evaluation of professional skills of student 41 over three semesters.

Student 2:
In the 9th semester there was a change in the evaluation of student 2. He was the only one in the seventh semester to evaluate himself higher than the teacher evaluated him. He evaluated himself mostly with grade 3 and 4, with a median of 3. The teacher often evaluated him with a mean value of 2 and 3. In the ninth semester this was no longer the case. On the contrary, the teacher evaluated the student higher. As shown in Fig. 5, the median for self-evaluation has a lower value by one grade compared to the teacher assessment. The teacher used a smaller range when assessing compared to the student. We can therefore say that the student was more critical in the assessment of his professional skills than the mentor teacher.
The development of autonomic assessment in a student over three semesters can be observed in Figure 6 and in Table 2. Statistically significant differences occur between the autonomous evaluations in the seventh and in the ninth semesters. There is a gradual increase in the central grades, and the lower limit of the quartile range increases. Throughout the three semesters the student assesses himself positively, saying that he prepares various activities for the children and alternates class and group work. As is clear from his assessments, the weakest aspect is providing feedback to pupils, encouraging students to do self-assessment and pupil reflection on learning (partially managed - 3). In the 7th semester he set as a personal goal: "I want to work on an activity for feedback", and his assessment gradually evolves to the maximum value of 5. Significant progress can be traced from the evaluative items "I include methods where students themselves come to discoveries and conclusions (1-3)"; "I help the students to complete the task within the agreed time and quality and to be responsible for carrying it out (3-4-5)".

<table>
<thead>
<tr>
<th>Variable</th>
<th>Friendman’s ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANOVA chi-kv. (N=26, sv=2) = 26,20779</td>
<td>p=0.00000</td>
</tr>
</tbody>
</table>

| Mean rank | Sum of rank | Mean | St.Dev. |
Table 2: Independent evaluation of student 2 in the 7th to 9th semesters

<table>
<thead>
<tr>
<th>Student2_7</th>
<th>1,326923</th>
<th>34,50000</th>
<th>3,269231</th>
<th>0,919030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student2_8</td>
<td>2,153846</td>
<td>56,00000</td>
<td>3,961538</td>
<td>1,038490</td>
</tr>
<tr>
<td>Student2_9</td>
<td>2,519231</td>
<td>65,50000</td>
<td>4,307692</td>
<td>0,837579</td>
</tr>
</tbody>
</table>

5. IMPLICATIONS AND CONCLUSIONS

Providing authentic and individually focused feedback as a means of targeted intervention on teaching practice is an important tool for reflection / self-reflection.

The data analysis shows that most frequently is the heteronomous assessment of the student done by the leading teacher higher than the student’s autonomous assessment. In the process of student evaluation teachers also use lower assessment scale, usually between grades 3 to 5. The results of the students’ self-assessment show that they feel the progress in the development of their professional competencies, and during their studies gradually increases the median score and narrows the assessment scale to grades 4 to 5.

We are aware of the fact that behind the data and its statistical processing there is a particular student with a unique professional self. In order to make the data come alive, communication, dialogue, and a search for arguments is essential. Students can be helped significantly in this by a mentor teacher who possesses
Development of Professional Skills on Teaching Practice: Student Teachers’ and Mentor Teachers’ Views

reflective and mentoring skills. The interconnection of an autonomous and heteronomous assessment, which is based on agreement, but also on opposing opinions, leads to the idea of deepening the ability to "see" themselves in the teaching process and in cooperation with a significant other person to help create parts of the professional self in order to increase reflective skills and the general outlook on themselves.

Based on the results we deem it necessary to (a) discuss the significance of the partial indicators as a means to a more objective assessment of the level of mastery of skills, (b) explain the meaning and content of the assessment tool to accompanying teachers and students and to train them in how to assign it (c) introduce intensive teaching practice in the fourth year with one mentor teacher to ensure cooperation on the retrospective and prospective dimensions of a professional point of view within one year.

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The importance of resilience in beginning teachers

Gloria Gratacós¹, Santiago Sastre², Inmaculada Rodriguez³, and Monika Ciesielkiewicz⁴

¹C.U. Villanueva (adscribed to UCM)  
ggratacos@villanueva.edu
²C.U. Villanueva (adscribed to UCM)  
ssastre@villanueva.edu
³C.U. Villanueva (adscribed to UCM)  
irodriguez@villanueva.edu
⁴C.U. Villanueva (adscribed to UCM)  
mciesielkiewicz@villanueva.edu

ABSTRACT
Teacher quality has been reported as a crucial factor in quality education (OECD, 2005, 2015) since it is a key determinant of student achievement (Rowe, 2003; ISTP, 2016). Teacher motivation and commitment are the cornerstone for the improvement of the effectiveness in the profession (Day, 2008); nevertheless, new and changing challenges in our societies are having a great influence in the classroom and affect teachers’ work and lives. There is a strong relationship between becoming competent and becoming resilient. Teacher resilience is a multi-dimensional concept that can be understood as a process where individual and environment interplay in a successful adaptation in adverse or challenging situations. Resilient teachers are those who can thrive in difficult conditions, have skills to manage disruptive students, have empathy with students with different needs, know how to manage emotions focusing on the positive and have a sense of fulfilment and commitment to their profession. Researchers have built a four dimensional framework of teacher resilience including emotional, motivational, social and profession-related dimensions (Mansfield, Beltman, Price, & McConney, 2012). An online questionnaire on these dimensions was applied to 29 beginning teachers who participated in an induction program in Madrid. Results showed the highest scores on the motivational dimension whereas the other dimensions had few items with high scores. Similarly, the aspects related with communication skills, problem solving and management of emotions had been highlighted as aspects with lower scores. It seems important to study how the resilience process can help to sustain beginning teachers’ efficacy and wellbeing.

KEYWORDS: teacher resilience, induction programs, beginning teachers, Spain.
1. INTRODUCTION
Teacher quality has been reported as a crucial factor in quality education (OECD, 2005, 2015) since it is a key determinant of student achievement (Rowe, 2003; ISTP, 2016). Nevertheless, little has been done to attract top third graduates to careers in teaching with the exception of Singapore, Finland, South Korea and, more recently, the United States (Auguste, Kihn, & Miller, 2010). In fact, most of these countries have established different measures that imply a selection of their future teachers (Carlo et al. 2013). Usually, countries which establish a selection of their teacher force do it once they have completed their education degree, through a compulsory examination to get the accreditation that enables them to work as a teacher.

In Spain, to be admitted into university requires passing an entrance examination established by the State. Nevertheless, some regions in Spain have required a specific mark for literacy and numeracy on the State university entrance examination in order to select better candidates for the last two years. Once they obtained an Education Degree, if they want to become civil servants in public schools, they have to pass a competitive examination based on merit. Private schools do not require anything similar, however, they may establish their own particular criteria.

As Roness (2011) states, it is crucial not only the quality of teacher education programs but also the introduction into the profession. Research has highlighted that the mismatch between expectancy and reality in prospective teachers’ perceptions of teaching can explain future attrition from the profession (Roness, 2011). The development of the professional identity is a result of a long process aimed to build a personal way of feeling as/being a teacher, as well as to give meaning to one’s daily professional duties: a ‘personal identity’ as well as an ‘identity for others’ (Bolivar, 2016). In this process, research stresses the critical role of experiences of prospective teachers as students, their motivation, their initial teaching experiences in ITE programs and induction practices (Carlo et al. 2013; Roness, 2011; Rots, Aelterman, Vlerick, & Vermulen, 2007).

Great expectations have been put on education as an important contributor to solve social problems in a changing society (Darling-Hammond & Lieberman, 2013; Hargreaves, 1994), making teaching a demanding profession. In fact, teaching in the 21st century is contemplated as one of the most stressful professions (PricewaterhouseCoopers, 2001). Beginning teachers are exposed to a lot of doubts, tensions and worries during their introduction to the teaching profession (Vaillant & Marcelo, 2015). Day and Gu (2014) underlined that the ability of teachers to control commitment, resilience and professional identity is critical with respect to their ability to teach. Therefore, as we stated before, induction plans and mentoring for beginning teachers alongside with
The importance of resilience in beginning teachers are crucial as well as the importance of developing resilience and thrive instead of simply surviving in their jobs (Day & Gu, 2014; Mansfield, Beltman, Broadley, Weatherby-Fell, 2016). Nevertheless, in Spain 62% of beginning teachers are not offered any formal induction program, 64% of them do not receive any formal mentoring support and, 45% of teachers are not given any appraisal or feedback (Schleicher 2011). Learning how to face the reality in a demanding job, understanding the reason for it and seeing it as an opportunity that is enclosed in it place new teachers in a position where they have to find strategies to improve their professional development and to thrive in their jobs. The process of resilience is put into action.

2. THEORETICAL FRAMEWORK

The notion of resilience originally comes from the discipline of Physics even though, it has spread out to other disciplines such as Sociology, Psychiatry, Developmental Psychology and Education. As a relatively new concept in Psychology, there is a discussion in research literature about different aspects such as if resilience is a result or a process, the concept of resilience and the scales to measure it (Piña Lopez, 2015). Nevertheless, there is still little research on teacher resilience (Gu & Day, 2007).

Beltman, Mansfield and Price (2011) in their review of research on teacher resilience highlighted the common ideas on resilience such as quality or capacity to overcome adverse conditions and to maintain commitment to teaching, job satisfaction and recover spirit quickly. Teacher resilience is a multi-dimensional concept that can be understood as a process where individual and environment aspects interplay in a successful adaptation to adverse or challenging situations. Resilient teachers are those who can thrive in difficult conditions, have skills to manage disruptive students, have empathy with students with different needs, know how to manage emotions focusing on the positive and have a sense of fulfilment in and commitment to their profession. To understand teacher resilience, it can be helpful to identify risk and protective factors of individuals and contexts. In their literature review, Beltman et al. (2011) identified most of them which we have summed up in the following table:

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>Protective factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Negative self-beliefs or confidence</td>
</tr>
<tr>
<td></td>
<td>Difficulty asking for help</td>
</tr>
<tr>
<td></td>
<td>Altruistic motivation</td>
</tr>
<tr>
<td></td>
<td>Strong intrinsic motivation</td>
</tr>
<tr>
<td></td>
<td>Sense of self-efficacy</td>
</tr>
<tr>
<td></td>
<td>Emotional intelligence</td>
</tr>
<tr>
<td></td>
<td>Coping skills</td>
</tr>
</tbody>
</table>
Table 1: Risk and protective factors of individuals and contexts.
Source: authors’ elaboration based on Beltman et al. (2011).

Mansfield, Beltman, Price, and McConney (2012) pointed out different dimensional frameworks such as Knight’s (2007) with three dimensions (social competence, emotional competence and ‘future oriented’) and the ‘Staff Mental Health and Wellbeing at Work’ model with three components (interpersonal, professional and organizational) (Commonwealth of Australia, 2010). Nevertheless, the development of a framework is very challenging because of the differences in terminology and the overlapping of different factors. These researchers have built a four dimensional framework of teacher resilience which include emotional, motivational, social and profession-related dimensions resilience (see figure 1). It is interesting to highlight that their research focused on how graduating and early career teachers viewed teacher resilience and build on it. Four dimensions based on Kumpfer’s (1999) framework, were proposed in order to help with teacher education and professional development. The profession-related dimension takes into account the practice of teaching such as organization, preparation, being reflective and using effective teaching skills. The emotional dimension refers to the emotional responses to teaching experiences, the management of emotions and coping with stress. The motivational dimension involve motivation, self-efficacy, persistence and perseverance. The social dimension include developing a support network, asking for assistance and taking advice.
3. METHODOLOGY

Our research study is part of a pilot project of an induction program that adopted a pro-active perspective aiming at helping to prepare beginning teachers for their demanding profession. The tool chosen to collect the data was the Multidimensional Teacher Resilience Scale developed by Mansfield & Wosnitza (2015) which is one of the scales used in the Teacher Resilience Self Reflection (TRSR) developed by Wosnitza, Delzepich, Schwarze, O’Donnell, Faust & Camilleri (2017) and validated by Peixoto, Wosnitza, Pipa, Morgan, & Cefai (2017).

The scale comprises 26 items to assess the four dimensions of teacher resilience: 1.) professional (four items, e.g. “At school I can be flexible when situations change”; “I am well organized in my school work”); 2.) emotional (four items, e.g. “When something goes wrong at school I don’t take it too personally”; “When I feel upset or angry at school I can manage to stay calm”); 3.) motivational (twelve items, e.g. “I am generally optimistic at school”; “When I make mistakes at school I see these as learning opportunities”); 4) and social (six items, e.g. “When I am unsure of something I seek help from...
colleagues”; “In my role as a teacher, I am a good communicator”). All items of the survey used a five-point Likert-type scale that ranged from “strongly agree” to “strongly disagree”.

In this study, the authors used an online qualitative survey on said dimensions. A total of 29 beginning teachers, who participated in the induction program in Madrid, responded the survey. Due to missing data, we had to eliminate 5 of them, comprising the final sample of 24 beginning teachers (N=24). The sample consisted of 12 females (50%) and 12 males (50%) who were teaching in the following stages: 25% Early Years teachers, 58,3% Primary teachers, 16,6% Secondary teachers and 8,3% upper Secondary teachers. The 2016-17 academic year was their first or second year of teaching. They were all teaching in private schools in Madrid.

4. RESULTS

In general, teachers rated very high their views about teaching, being the values “strongly agree” and “agree” the most scored. Results showed the highest scores on the motivational dimension whereas the other dimensions had few items with high scores. Regarding the results on professional dimension displayed in table 2, we can observe that the ones related to flexibility and adaptation capacity to new and changing situations were the most rated whereas the work organization and critical reflection were the least rated.

<table>
<thead>
<tr>
<th>Professional dimension</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I reflect on my teaching and learning to make future plans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am well organised in my school work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can quickly adapt to new situations at school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At school I can be flexible when situations change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Scores for professional dimension items.
As for the emotional dimension, the three least rated items were related to the management of emotions. This aspect has been stated as very important in the teaching profession and can help to prevent stress and burnout.

Motivation dimension is the one with highest scores since 5 out of 12 items were scored with “strongly agree” by over 50% of the participants. It is interesting to highlight that participants valued high items such as the importance of their effort, liking challenges, being optimistic and enjoying with teaching. All these items are related to intrinsic motivation and self-confidence which constitute important protective factors. The item least scored was the focus on their strengths instead of their limitations which can be considered normal since beginning teachers tend to compare themselves to expert teachers and focus on their limitations (Vaillant & Marcelo, 2015). It can also be seen as lack of self-efficacy of beginning teachers. Beginning teachers report lower levels of self-efficacy and less effective teaching time due to the time spent in keeping order in the classroom (Jensen, Sandoval_Hernández, Knoll & Gonzalez, 2012).
Table 4. Scores for motivational dimension items.

In the social dimension, communication skills were the least scored aspect. Nevertheless, the willingness to ask for peers’ support is an important protective factor.
5. CONCLUSIONS

Starting to unravel the concept of resilience and trying to understand better its dimensions and processes can help to sustain beginning teachers’ efficacy and wellbeing. Moreover, it can provide guidance on how to improve initial teacher education and the introduction to the teaching profession as new teachers. Research has pinpointed the importance of this moment to improve teacher quality (Vaillant & Marcelo, 2015).

The application of the Multidimensional Teacher Resilience Scale as a part of the Teacher Resilience Self Reflection developed by Wosnitza et al. (2017) to beginning teachers has shown how these four dimensions of teacher resilience are valued. And most importantly, it gives us insights on which protective factors are more consolidated and therefore, put more effort in the ones less valued during their teacher training (especially during their practicum period in schools) and induction programs once they start teaching.

The results of this survey put in evidence the need to work more on the development of emotional management, communication and problem solving skills. Another aspect which should be addressed is the need to nurture altruistic and intrinsic motivation in pre-service teachers and to take these aspects into account in the selection of candidates for educational degrees. Research has indicated the relationship between altruistic and intrinsic teacher
motivation and the commitment and students’ achievement (Day, 2008; Paulick, Retelsdorf, & Möller, 2013; Watt, Richardson, Klusmann, Kunter, Beyer, Trautwein, & Baumert, 2012). “Countries that have succeeded in making teaching an attractive profession have often done so not just through pay, but by raising the status of teaching, offering real career prospects, and giving teachers responsibility as professionals and leaders of reform. This requires teacher education that helps teachers to become innovators and researchers in education not just deliverers of the curriculum” (Schleicher, 2011, p. 11). To be able to do so, we need teachers that are resilient and can really thrive in their profession.

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THE IMPORTANCE OF RESILIENCE IN BEGINNING TEACHERS


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Function of teaching practices in the acquisition of professional knowledge

Raquel Gómez Sánchez¹, María Luisa García Rodríguez², and Juanjo Mena Marcos³

¹Universidad de Salamanca
raquelgs29@gmail.com
²Universidad de Salamanca
malugaro@usal.es
³Universidad de Salamanca
juanjo_mena@usal.es

ABSTRACT
In this paper we are presented some of the results obtained in the European Project “Action-oriented teacher knowledge” ACTTEA, with the participation of Estonia, Finland, Holland and Spain. Here we only present Spanish results. The objective of the project is to assess how the trainee teachers learn from their practical school experience, i.e., value the practical knowledge that the aspiring teachers actually assimilate in the Primary Education Practicum.

An empirical study was carried out following three phases. In Phase 1, teachers in training videotaped lectures given by them; In Phase 2 they analyzed critical incidents, both positive and negative; And in Phase 3 they prepared an individual report of what they had learned. In the three phases three types of reflection were used: (a) individual reflection; (b) reflection with peers; (c) reflection with the teacher-tutor.

Three analyzes were performed. In the first analysis, they identify the critical incidents obtained from the positive and negative recordings; In the second, the most frequent topics that appear in the sessions were selected; Finally, in the propositional analysis, the discourse is divided into the basic ideas classifying the types of practical knowledge in narrative (recalls and appraisal), inferential / application (rules and artifacts) and explanatory (practical and theoretical justifications).

The results obtained allow us to understand that teachers in training under condition C are better able to learn a more sophisticated and generalizable type of professional knowledge to apply in class, while conditions A and B allowed a better understanding of the intervention performed.

KEYWORDS: Primary Education, Practicum, Teaching practices, practical knowledge
1. INTRODUCTION

In order to attain a good educational quality, we must pay attention to teacher training, as mentioned by Clare Kosnik (2014): "Quality in education depends directly on the quality of teachers, educators and curricula." Therefore, this research aims to study the learning process developed by teachers in training during the immersion phase in school contexts, to move towards higher quality and efficiency in the preparation of teaching staff.

2. THEORETICAL FRAMEWORK

Professionals who venture into the world of teaching need to know and have a certain mastery of the knowledge, skill or experience they wish to convey. But this is not enough, since they also need to think about what and how to teach it (Davini, 2015). In addition, it is necessary to reflect on this practice so that the professional knowledge is of quality and thus, it is possible to act on the necessary points for an improvement of the teaching.

Nowadays, the Practicum has become an important issue, as it is an essential component of the training process, but it should not be a period in which academic work is neglected, as it requires specific planning, monitoring and reflection so that the internship is of quality (Beraza, 2017).

During this internship period, students must obtain the skills and abilities necessary for their professional development, but when they are immersed in the Practicum they find themselves with the feeling of not being prepared for the teaching or feel that they have not obtained the necessary knowledge to face a classroom (Onrubia, Colomina, Mauri & Clarà, 2015).

Therefore, in order to reinforce this learning, we must resort to a "guided reflection" work, that is, a process where the future teacher is guided in his reflection by his internship teacher on the teaching-learning process, in order to generate knowledge about educational reality (Font, Rubio, Giménez and Planas, 2009).

During this guided reflection process, students should identify the critical incidents of their practice, so in this study we have considered that guided reflection is an appropriate method that helps students of the elementary school teacher to achieve higher levels of reflection, as well as to obtain practical professional knowledge, that is, professional knowledge that the teacher develops from his experience. It recognizes the relationship that is established between the thought processes of teachers and their concrete actions. (Cuevas de la Garza, 2013).
Within this practical knowledge Mena, García and others (2016) established two main types of pedagogical knowledge: narrative knowledge (recalls and rules) and inferential knowledge (rules and artifacts).

Depending on their degree of abstraction and generalization (from abstract to more abstract), we can classify the types of knowledge in:

1. Recalls: they are reproductions of something that has been lived.
2. Appraisals: they are evaluations of the practice itself (both positive and negative).
3. Rules: practical principles and rules that the teacher draws from his experiences.
4. Artifacts: they are instruments or physical supports used by teachers in action on the basis of their generalizations of experience and that can assist future practice (Shulman, 2002).

In addition, Toom (2012) found a more sophisticated type of knowledge that requires more time and effort: explanatory knowledge (including practical justifications and theoretical justifications) (Leijen et al., 2015).

5. Practical justifications: they refer to the practical arguments teachers give to understand their experiences.

3. METHODOLOGY.

This study is part of the ACTTEA European Project, but in this research we focus exclusively on Spanish data.

The main objective of this research is to describe how teachers in training learn from their own practice by recording their sessions. In a more specific way, the objectives that we propose are:

- Describing which types of pedagogical knowledge arise in the teaching practice.

- Comparing which condition of reflection: individual, peer and teacher-tutor reflection benefits obtaining a more sophisticated knowledge.
For this, 88 students from the Primary Education degree of the School of Education of Salamanca were selected, as well as 33 tutors from the schools that directly supervised the students.

Once selected, the trainees carried out recordings of their sessions. Later they individually reflected on them, with a partner and with the mentor, in order to reveal the type of knowledge that arises in the educational practice.

In all the recordings the right to privacy of the students and their surroundings was maintained; the authorizations to record to centers and families were requested; and a written commitment was signed to make proper use of them.

In addition, the trainees received an 18-hour training course, and were provided with a document with the necessary information to follow the guided reflection procedure, in which they were asked questions such as: what are the most significant events?, why is the incident important?, what is the relation of the incident with the theory?, among others.

In this research a mixed methodology was carried out. First, a qualitative analysis is taken to obtain the information in greater detail (Binda and Balbastre-Benavent, 2013). Subsequently, a quantitative analysis of the linguistic units of individual reflections, with peers and with tutor, is performed. For this, a triple analysis was performed from lower to higher degree of scrutiny:

1. Analysis of critical incidents: they reflected on a positive and a negative incident, classifying it according to four categories (Johnson, 1995; Toom, 2006; Patrikainen, 2012):
   A. Pedagogical Relationship (RP): the incident reflects the relationship between the teacher and the student.
   B. Content Relationship (RC): relationship between teacher and content.
   C. Learning Relationship (RA): relationship between student and content.
   D. Didactic Relationship (RD): relationship between teacher and student learning.
2. Thematic analysis: they were classified into three macro-categories identified in critical incidents: teacher in training, classroom students and content.
3. Propositional analysis: reflections were divided into propositions and classified into four types of professional knowledge: recalls, appraisals, rules, artifacts, practical and theoretical justifications.
4. RESULTS.

Below we can see the results obtained in the three reflections: individual, peer and with tutor.

![Figure 1: Positive and negative critical incidents](image)

First, critical incidents were analyzed by dividing them into positive and negative incidents. In total, 903 positive incidents were obtained, that is, 60.56%, and 588 negative incidents, representing 39.43%.

If we divide them into the three reflections, we obtain in the individual reflection 220 positive incidents, 55.41% and 177 negative incidents, 44.58%. In reflection with peers we have 414 positive incidents, which represent 66.02%, and 213 negative incidents, 33.97%. Finally, in the reflection with the tutor there are 269 positive incidents, 57.60%, and 198 negative incidents, 42.39%.

We observe that in the three categories of reflection we obtain more positive than negative incidents. The category that most differs is the reflection with peers, since they considered it easier to mention the positive rather than negative aspects of their peers.

Table 1 shows the practical knowledge extracted by the students in the three reflections: individual, with peers and tutor. It consists of the interaction of three important elements: teacher, student and content, explained previously.
We have in total 1514 thematic sentences divided in the three reflections and by didactic relation.

In the individual reflection we obtain 420 thematic sentences: 37 sentences related to the relationship between teacher and student (RP), 26 related to teacher and content (RC), 3 sentences that speak of student and content 354 sentences related to teacher, student and content. We observed that the last condition represents 84.28% of the sentences, with the student-content ratio being the least, only 3%, followed by the teacher-content relationship with 26% and the teacher-student relationship represents 37%.

As for reflection with a peer, we have 627 thematic sentences: 28 sentences that speak of the relationship between teacher and student (RP), 39 related to teacher and content (RC), 5 with student and content (RA) and 555 thematic sentences related to the teacher, student and content (RD). We return to verify that the last condition is the most recurrent, representing 88.51% of the data, again being the relation between the student and the content the one with the fewest sentences, 0.79%. In the case of the other two relationships, we obtain data similar to individual reflection, 6.22% represent the relationship between the teacher and the content and 4.46% the relationship between the teacher and the student.

Finally, in the reflection with the tutor we obtain 467 thematic sentences, of which 5 sentences belong to the relationship between the teacher and the student (RP), 25 sentences are related to the teacher and the content (RC), no relationship between the student and the content in this reflection (RA), and there are 437 sentences related to the teacher, the student and the content (RD). We verified that the RD condition represents 93.57% of the data, again being the most recurrent relationship, followed by the teacher-content ratio with 5.35% and the teacher-student ratio with 0.77%. In this reflection we do not get any knowledge related to the student and the content.
As for the total of the three reflections, we find 1514 sentences, 70 of them, or 4.62%, related to the teacher and the student (RP), 90 sentences, 5.94%, related to the teacher and content (RC), we find only 8 sentences that speak of the student and the content (RA), that is, 0.52%, and as we have been observing, in the last category 1346 sentences are obtained, that is, 88.90% of the data are related to the RA condition (didactic relationship).

Secondly, a thematic analysis was carried out, dividing the talks into three main themes: teacher in training, which represents 64.65%; students in the classroom, being 25.09% of the data; and topics related to content, 10.25%. Within the previous macro-themes, students were asked to select the two most significant incidents of their session (critical incidents). They had to select a positive and a negative incident, and then they were classified according to the different types of pedagogical knowledge.

The most frequent subjects dealt with the attention of the students, appearing in 56 (4.67%) of the units. As far as the subject they analyze the least, we can see that it is related to the basic competences, appearing only in six units (0.5%).

Finally, a propositional analysis was carried out, in which the main results indicate that all three conditions generated a similar number of reflexive comments (37% for individual reflection, and 31% for reflection with peers and reflection with the tutor), however, narrative knowledge was significantly higher (203; 71%) than the other two main groups: explanatory knowledge (70; 24%) or inferential knowledge (12; 4%).

In addition, in the condition with peers as in the reflection with the tutor is an exact number of fragments (89; 31%). This leads us to understand that collaborative reflection can raise different patterns of practical knowledge of individual reflection. The differences are also notable in the case of rules and artifacts. More specifically, 18 artifacts (6%) and 19 rules (6%) were found in the individual reflection condition while 4 (1.40%) and 5 (1.75%) and 14 (5%) and 10 (3.5%) is inferred, respectively, in the reflections between colleagues and reflection with the tutor.

5. IMPLICATIONS/DISCUSSION.

This study aimed to verify what kind of pedagogical knowledge emerges from teaching practice through the use of a triple analysis: analysis of critical incidents, thematic analysis and propositional analysis. With the analysis of the critical incidents we test which aspects considered the students in training (both positive and negative) to be more relevant to their own practice. With this analysis we can confirm what they did well and what they found most difficult, which helped them to become aware of their
teaching experience in terms of what it is needed to be kept in future internships and what needs to improvement. According to the basic model of teaching practice (model of the instructional core of the teaching practice) (Herbart, 1835; Kansanen & Meri, 1999; Toom, 2006; Patrikainen, 2012) any educational event experienced by teachers, entails a relationship between two or more elements. According to this model four relationships can be given. Observing our study we verified that there is an imbalance with one of the categories, that is to say, the relationship between the student and the content is only given. While most cases are related to the RD condition (relationship between teacher and student learning), since in practice all agents are involved.

Finally, propositional analysis helps us understand the kind of practical knowledge that is revealed in action. The results show that when students in practices reflect with their tutors are able to learn a more complex and generalizable knowledge such as rules and artifacts. Whereas when they reflect with their peers the type of knowledge is more narrative (recalls and apraisalls). On the other hand, there are no differences between individual and tutor reflection when generating inferential knowledge (rules and artifacts).

6. CONCLUSIONS

The study shows that learning inferential knowledge is more difficult than learning it naturally in reflective dialogues. In addition, trainees find it difficult to relate their own experience (practical justifications) with educational theories (theoretical justifications).

Therefore, we can conclude by mentioning that the conversations with the tutors led the teaching students to introduce changes in their future practice while the individual reflections and the reflections with peers lead them to understand them better. Consequently, if we want to increase the quality of education and that our teachers acquire the necessary professional skills for a good education, the Practicum should take into account individual reflection, dialogue with peers and with the tutor of internships.

REFERENCES


FUNCTION OF TEACHING PRACTICES IN THE ACQUISITION OF PROFESSIONAL KNOWLEDGE


Are researching skills taught in the practicum for the degree of early childhood education at Salamanca University?

Marisa García¹, and Marta Franco²

¹Salamanca University (Spain)  
malnaro@usal.es  
²Salamanca University (Spain)  
martafrancodd@gmail.com

ABSTRACT
Traditionally, the teaching body carried out tasks related to teaching and education. In the latest decades of the 20th century, however, it was acknowledged they had yet another task; research. Moreover, recently the concept of “skill” was used to describe the goals they aspired to reach. Alongside specific knowledge, its elements were attitudes and values; capabilities and skills. The new role played by teaching bodies includes responsibilities regarding innovation processes. Meanwhile, the result of abundant research (Schön, 1998; Pérez, 1988; Zeichner, 1993: Karmilof-Smith, 1994; Kortaghen, Kessels, Koster, Largerwerf y Wubbels, 2001) vindicates the use of practical knowledge when teaching. Teachers in training need new strategies in order to respond to the demands of teaching how to research, thus improving their performance. This research analyses regulatory documents used in the Practicum course of the Education Department at Salamanca University for the degree of Early Childhood Education. After four years of graduates trained under the “Grado” guidelines, we believe it is only appropriate to review it so as to undergo changes if deemed necessary. We are trying to discover to what extent researching skills were observed in these documents; to ascertain the place these skills hold among the skills attributed to teachers and whether they have displaced the more traditional skills, such as teach and educate. The results prove that researching skills appear in the documents, but they are in a lower proportion than skills such as teaching and educating.

KEYWORDS: professional skills, researching skills, research teaching, Practicum course.

1. INTRODUCTION
The current Practicum in the study plan for the University Degree of Early Childhood Education in Spain counts with 50 European ECTS credits out of the total 240. Out of those, 44 belong to the Practicum course and the other 6 to the end of degree dissertation.
The professional activity they are preparing for must be carried out according to general regulations described in section 3.5 of the Royal Decree 1393/2007
It respects fundamental rights and equality between men and women, it promotes Human Rights, equal opportunities, no discrimination and universal accessibility for disabled people, as well as respecting the values expected from a democratic and peaceful culture.

The aforementioned plan contains the prerequisites, minimal modules and required credits to receive the Graduate certificate. They must substantiate the acquired skills in the addendum found in the ECI/3854/2007 order, which refers to Early Childhood Education.

Salamanca University divides the 44 ECTS credits between the 3rd and the 4th years; they are called, respectively, Practicum I (20 ECTS) and Practicum II (24 ECTS). They entail internships in Early Childhood schools which last 7 weeks, in the case of Practicum I, and 9 weeks in Practicum II.

The importance of acting reflectively is insisted upon in the different school situations; therefore, reflection must be trained (Dewey, 1933-2004) from merely educational perspectives. Through systematic self-study the teacher can identify successes and failures. We have a particular interest in the need to understand both aspects involved in the profession: teaching skills, which are tied to educational skills; and researching skills. Traditionally they were in separate areas: on inside the school and the other outside it. However, for several decades the researcher role of the teaching body has been openly acknowledged, thanks to the notion of ‘on’ and ‘over’ (Stenhouse 1975, 1987; Schön, 1998).

In order to regulate the activity surrounding Early Childhood Education and the two courses (Practicum I and Practicum II), the General Guide was drawn. It compiles, among other content: prerequisites, organisational guidelines, responsibilities of the agents involved, programmes, aims and skills.

The Practicum follows an increasing sequence of time commitment, undergraduate involvement and assistance in all the possible school contexts and educational situations. The subject contains a very wide range of formative activities, as well as their placement in schools. So as to provide some guidance to the Early Childhood Education undergraduates, the Education Department has drawn some other documents, known as Practicum I Outline and Practicum II Outline. They describe the activities that should be conducted during their time in the schools for each degree course.

2. THEORETICAL FRAMEWORK

The initial training for teachers should lay the foundations that will enable them to successfully navigate the incredibly complex task of teaching, acquiring both scientific and educational psychology bases. Pedagogic knowledge is closely attached to the action. This is the reason why during this phase ‘practical learning’ is needed. The methodology for teaching must be direct and it should encourage reflexive learning by combining theory and practice. Along
these lines Korthagen (1985) wrote that “Reflective teaching and preservice teacher education in Netherlands”. Years later he co-authored of the inviting title “Linking practice and theory: the pedagogy of realistic teacher education” (Korthagen, Kessels, Koster, Lagerwerf & Wubbels, 2001). Schulman (2005) joined in on the proposal of a reflection oriented towards transformation, stressing the usefulness of strategies based on understanding and reasoning. The “realistic model” suggested by Korthagen et al (2001), describes the ideal process of experiential learning as an alternation between action and reflection. Distinguishes five phases in this process: (1) action, (2) looking back on the action, (3) awareness of essential aspects, (4) creating alternative methods of action, and (5) trial, which itself is a new action and therefore the starting point of a new cycle. This five phase model is called the ALACT model (after the first letters of the five phases).

It is estimated that the skill based learning proposal will promote a link between training and professional development. Nearing the area of the teaching body, Moreno (2011) mentioned that the professional skills early childhood teachers and teachers should develop, because of their importance when facing immediate challenges and short term ones posed by society, are: cultural sensitivity, proficiency in specific knowledge, teaching materials, teamwork, social awareness and emotional skills. On their part, García, Lahora and De Castro (2009) pointed out that the professional tasks are: educate; teach; moderate behaviour; cooperate with the families; research, experiment and innovate; assist and cooperate with other people; and attend to administrative tasks.

3. METHODOLOGY
The acknowledgement of researching skills among the teaching body translates into considering said skills which are the topic of this examination. We have linked the internships in these schools according to the Practicum courses because the practical knowledge necessary to train new professionals is relevant (Jyrhämä, 2011; González y Fuentes, 2011). In 2017, the fourth year of ‘Grado’ students will graduate, which offers a new perspective from which to assess certain decisions and actions.

The question “Are researching skills taught in the Practicum for the degree of Early Childhood Education at Salamanca University?” suggests that it should be checked whether researching skills are contemplated in regulation documents of the Practicum. The aforementioned general goal invites the following specific aims: Assess whether its consideration has displaced teaching and educational skills alongside estimating whether there are significant differences regarding said “traditional” skills of the teaching body.
In order to reach the goals we have set, we will analyse texts containing teaching regulations: the General Guide of the Practica; Practicum I Outline; and Practicum II Outline. All of them drawn for the degree on Early Childhood Education at the Education Department of Salamanca University, written using qualitative methodology (Tójar, 2010).

Tasks involved in data analysis are: “data reduction, data display and drawing or verifying conclusions” (Miles and Huberman, 1994, 12). The use of categories enables data classification once it is collected. Thus it becomes an instrument for analysis. Consequently, we have built an indexation tree representing the different categories and subcategories obtained from the data. The references for the creation of this tree the “professional tasks” were texts by García, Lahora and De Castro (2009), as well as the skills suggested by Moreno (2011). We have used the term “professional skills”, understanding that the “professional tasks” encompass all the parts of the skills. Along this line, the word “teach” is a teaching skill, “educate”, an educational one, and “research”, a researching skill. The indexation tree appears in figure 2.

![Indexation tree](image)

**Figure 2: Indexation tree.** Source: Adapted from Moreno (2011) and García, Lahora and De Castro (2009). Prepared by the authors.
In order to complete the analysis, we have taken the line of text as a textual unit. The frequency was obtained from the accounted number of textual units (t.u.). It was understood that the more relevance would grant a greater proportion of the text. We took the total of textual units in each document as a reference, and counted the number of textual units dedicated to each skill. Table 2 presents a sample of the goals set and the tasks to be completed by the teaching body in training in order to attain each of the skills. The purpose was to present the procedure followed in that category.

<table>
<thead>
<tr>
<th>DOCUMENTS</th>
<th>SKILLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. TEACHING</td>
</tr>
<tr>
<td>GENERAL GUIDE FOR THE PRACTICUM</td>
<td>Goal: Engage in the teaching activity, acting and reflecting from a practical perspective.</td>
</tr>
<tr>
<td>OUTLINE: PRACTICUM I</td>
<td>Task: Design, develop and assess a single activity in the classroom.</td>
</tr>
<tr>
<td>OUTLINE: PRACTICUM II</td>
<td>Task: Design, develop and assess a teaching unit.</td>
</tr>
</tbody>
</table>

Table 2: Goals and tasks. Source: Prepared by the authors.
4. RESULTS

The obtained results from the analysis of the three documents are shown in the following table.

<table>
<thead>
<tr>
<th>SKILLS</th>
<th>DOCUMENTS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General Guide for the Practicum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Practicum I Outline</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Practicum II Outline</td>
<td></td>
</tr>
<tr>
<td></td>
<td>∑</td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>1. TEACHING SKILLS</td>
<td>146 t. u.</td>
<td>238</td>
</tr>
<tr>
<td></td>
<td>45 t. u.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>47 t. u.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>238</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14,92%</td>
<td></td>
</tr>
<tr>
<td>2. EDUCATIONAL SKILLS</td>
<td>139 t. u.</td>
<td>218</td>
</tr>
<tr>
<td></td>
<td>39 t. u.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 t. u.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>218</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13,66%</td>
<td></td>
</tr>
<tr>
<td>3. RESEARCHING SKILLS</td>
<td>165 t. u.</td>
<td>216</td>
</tr>
<tr>
<td></td>
<td>24 t. u.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>27 t. u.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>216</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13,53%</td>
<td></td>
</tr>
<tr>
<td>OTHER SKILLS</td>
<td>746 t. u.</td>
<td>924</td>
</tr>
<tr>
<td></td>
<td>92 t. u.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>86 t. u.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>924</td>
<td></td>
</tr>
<tr>
<td></td>
<td>57,89%</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>1196 t. u.</td>
<td>1.596</td>
</tr>
<tr>
<td></td>
<td>200 t. u.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>200 t. u.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.596</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 3: General quantitative results of the research. Source: Prepared by the authors.

Taking the whole text of the analysed documents into consideration, a greater extent is dedicated to teaching skills, with 238 t. u. (14.92%); followed by educational skills, with a 218 t. u. (13.66%). The lowest percentage, when compared to the analysed skills, represents the researching skills with a total 216 textual units (13.53%).

If we analyse each skill separately, we will obtain the following percentages:

<table>
<thead>
<tr>
<th>SKILLS</th>
<th>DOCUMENTOS</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General Guide for the Practicum</td>
<td>61%</td>
</tr>
<tr>
<td></td>
<td>Practicum I Outline</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>Practicum II Outline</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>100%</td>
</tr>
<tr>
<td>1. TEACHING SKILLS</td>
<td>60,5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>19,5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>100%</td>
</tr>
<tr>
<td>2. EDUCATIONAL SKILLS</td>
<td>76%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 4: Percentages according to each skill. Source: Prepared by the authors
The distribution of data related to researching skills shows the percentage reached by the General Guide for the Practicum: with 165 textual units, it results in 76%. It can also be observed that the percentage reached by the Practicum II Outline (27 textual units, 13%) is greater than the one of Practicum I (24 textual units, 11%).

Among the textual data classified under the category of “Researching skills”, we find 1,505-1,524 t. u. corresponding Practicum II:

“PROFESSIONAL DIARY: [-] It is a self-assessment tool for the aspiring teacher, it encourages reflexive and researching actions, and therefore, their permanent professional development. [-]. It is a wonderful resource to express dilemmas or problematic situations that may arise during professional action, situations that can go one way or the other”.

5. IMPLICATIONS/DISCUSSION
The results conclude that there is a researching skill contemplated in regulatory documents. The Guide sets goals and the Practicum I and Practicum II Outlines for Early Childhood Education present activities designed to train researching skills.

However, when revisiting quantitative data, we can estimate the mean if we consider the entirety of the textual units in the three documents (1,596 t. u.) and the total number of the skills observed in our research: 7. The resulting mean is 228 t. u. for each skill. The 216 t. u. corresponding “researching skills”, divided by the number of texts, indicate somewhat of a disadvantage for the skill we are studying, as opposed to “teaching skills”, which are above the average with their 238 t. u.

How is this data to be interpreted? It seems to indicate the persistent belief that the activity carried out by the teaching body that is considered the most important is teaching. We are on our way to add researching skills to that list in an equal capacity. Said researching skills can be focused towards putting any practical knowledge to use in the classrooms. Fittingly, this very same idea has been asserted by renowned researchers in the last decades of the 20th century (Schön, 1998; Pérez, 1988; Zeichner, 1993: Karmilof-Smith, 1994; Kortaghen, Kessels, Koster, Largerwerf y Wubbels, 2001).

6. CONCLUSIONS
Once we analyse the data and displayed the results, we will use this section to tackle the specific aims that arrive at the general goal. Finally, we will answer the question posed in this research.

In regards to the specific aim of Estimating the possibility of significant differences relating to “traditional” teaching body skills: the obtained percentage for researching skills (13.53%) taking into consideration the total of the contents in all three documents, results in a slightly lower number than the one for traditional skills.
Respecting the general goal of *Checking whether researching skills are contemplated in Practicum regulatory documents*, the data proves that the aforementioned skill is observed in the General Guide for the Practicum (165 t. u.) and both Practicum I Outline (24 t. u.) and Practicum II Outline (27 t. u.).

Finally, we shall tackle the main question posed by this research: *Are researching skills taught in the Practicum for the degree of Early Childhood Education at Salamanca University?* The data allows us to give an affirmative answer, since the intention of teaching it can be found in all three analysed documents. However, the total number of textual units reached by researching skills (216 t. u.), is below the mean, which is 228 t. u. for all the skills observed in this research. These figures indicate it would be desirable to review the documents in order to boost researching skills in the future.

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Pre-service teachers’ perspectives on their experience in a school-based Practicum. A mixed methods approach

Ana Mª Pinto-Llorente¹, Marcos Cabezas-González², and Sonia Casillas-Martín³

¹Faculty of Education, University of Salamanca  
ampintoll@usal.es
²Faculty of Education, University of Salamanca  
mabezsgo@usal.es
³Faculty of Education, University of Salamanca  
scasillasma@usal.es

ABSTRACT
The aim of this paper is to explore pre-service teachers’ perspectives towards a school-based Practicum within the context of a Degree in Primary Education: English. The practicum experience took place in different primary education schools during the 1st semester of the academic year 2015-2016, and lasted for seven weeks. During the 2nd semester participants were enrolled in another subject of Practicum in which they analysed the previous experience. We used a mixed methods approach. The instrument used to collect the quantitative data was a questionnaire divided into four parts: (1) socio-demographics characteristics of the participants; (2) analysis of the educational reality and organisational aspects; (3) teacher-tutor performance; and (4) pre-service teachers’ teaching intervention. A total of 113 pre-service teachers, ranging in age from 22 to 48, completed the survey at the beginning of the 2nd semester. In addition, qualitative data were obtained through semi-structure interviews. The qualitative sample was non-probabilistic, cumulative and sequential, to reach theoretical saturation and meet the objectives of the research. The sample was made up a total of 57 pre-service teachers. On analysing the results we found that the majority of the pre-service teachers highlighted the importance of the school-based Practicum as an opportunity to develop their teaching skills in the real context of a classroom setting. They stated that it was a fantastic experience to put into practice the knowledge acquired at university.

KEYWORDS: a school-based Practicum, English as L2, higher education, a Mixed Methods Research.

1. INTRODUCTION
School-based Practicum experiences are considered relevant components of any degree of teachers’ education (Hill & Brodin, 2004; Wilsom, 2006). The teaching-learning process that takes place through them is an essential component to provide pre-service teachers authentic opportunities to put into practice in a real school context what they have learned at university. As
Kaphesi (2013) states these practicum experiences help pre-service teachers to develop a contextualised understanding of the process of teaching and to acquire the skills to manage the classroom, to be aware of their teaching styles, to plan lessons or to interact with students.

The present study is conducted in the framework of a school-based Practicum, specifically in the practicum experience in the Degree in Primary Education: English. The purpose of this practicum experience is to prepare pre-service teachers to:

- learn to come across really well in educational complex situations or those situations that require the development of new solutions for their future work, specifically their work in schools of Primary Education in which they will teach English as second language or even other subjects, such as science or arts and crafts, using English as the language of communication
- show an adequate understanding of practical aspects and method of primary classrooms, specifically those that refer to pre-service teachers’ specialty.
- be able to put into practice their knowledge and problem-solving skills in primary classrooms, using creative and innovative resources and ideas.
- identify their own training and professional needs, especially those that refer to their specialty.

That practicum experience took place in different primary education schools in Spain during the first semester of the academic year 2015-2016, and lasted for seven weeks. During this experience pre-service teachers had the advice and monitoring of university academic tutors, and also the support of management teams and tutors of primary education schools.

In the second semester participants were enrolled in another subject of Practicum, Practicum II. Integration, Participation and Analysis of the Speciality of English, in which they analysed that previous experience. The aim of our study was to investigate learners’ perceptions towards the previous school-based Practicum.

In the following parts of our paper, we provided an overview of the study. Firstly, we introduced the study by providing a mixed methods research combining qualitative and quantitative methodologies. The study was based on a sample of 113 pre-service teachers from a population of 153 enrolled in the subject Practicum II during the academic year 2015-2016. To operationalize the variables and collect the data of our study, we used a survey and individual semi-structure interviews. In the next section of the research, we presented the main quantitative and qualitative results obtained from the data analysis.
Finally, we showed the main conclusions of the study according to pre-service teachers’ perceptions towards the experience.

2. METHODOLOGY

We employed a mixed methods research to explore pre-service teachers’ perspectives towards a school-based Practicum within the context of a Degree in Primary Education: English. Anguera (2008) states that the combination of qualitative and quantitative methodology enhances the mutual invigoration of the two types of methods, and facilitates the triangulation through operations. Delgado (2014) highlights this idea and adds that it cannot be considered a juxtaposition but a flexible combination of the components of both methods, that is to say, a combination of the formal rigour of the quantitative method and the creativity and plasticity of the qualitative one. Qualitative and quantitative data collection and analysis aim at integrating results and carrying out a combined discussion that allows making interferences to understand better and to have a broader vision of the phenomenon.

We can point out the following characteristics of a mixed methods research (Bryman, 2008; Delgado, 2014; Hernández, et al. 2014): triangulation, complementation, holistic vision, development, initiation, expansion, compensation, diversity, clarity, and credibility and improvement.

3. PARTICIPANTS

The population of our research was composed of 153 pre-service teachers of the Faculty of Education of the Pontifical University of Salamanca. They were studying the last year of the Degree in Primary Education: English. They were enrolled in the subject Practicum II. Integration, Participation and Analysis of the Speciality of English during the academic year 2015-2016. All of them had already finished a seven-week practicum experience in different schools of primary education during the first semester of the same academic year.

The quantitative simple was composed of a total of 113 participants ranged in age from 22 to 48, with an average age of 31.32 (SD = 7.30). Of the 113 cases, 79 were women (69.9%) and 34 men (30.1%). 51.3% (n=58) were between 22 and 29 years old, 30.1% (n=34) were between 30 and 39 years old, and 18.6% (n=21) were between 40 and 49 years old. The quantitative sample of our study was a probability sample and sufficiently representative (relative error n=2.5%) to reach conclusions that could be generalized to a larger population.

The qualitative sample of the study was non-probabilistic, sequential and cumulative, the necessary one to reach the data saturation and get enough information to meet the objectives of the study. The sample was composed of 57 pre-service teachers, 34 were women and 23 men.
4. INSTRUMENTS

The quantitative data were collected through a questionnaire divided into four parts: (1) socio-demographics characteristics of the participants; (2) analysis of the educational reality and organisational aspects; (3) teacher-tutor performance; and (4) pre-service teachers’ teaching intervention.

Regarding socio-demographics characteristics, this part of the survey was composed of a total of 4 items in which participants were asked about their age, gender, the previous university degree, and possible previous practicum experiences. The questions were open, closed, and yes/no questions, depending on the nature of the item.

The second section of the survey was related to the analysis of the educational reality and organisational aspects. It was comprised of 8 items. Pre-service teachers were asked to assess the organization of schools, architectonical characteristics, teaching resources, bilingual projects, specialized teachers, collaboration between staff, collaboration between staff and families, and collaboration between schools and other entities. Their answers were coded with a Likert scale ranged from ‘excellent’ to ‘poor’. In this study ‘Poor’ was coded as 1; ‘Fair’ as 2; ‘Good’ as 3; ‘Very good’ as 4 and ‘Excellent’ as 5.

The third section of the questionnaire was related to teacher-tutor performance. It was comprised of 4 items: teacher-tutors’ plan of lessons, teaching-learning strategies used, resources used, and problem-solving strategies used. Their answers were coded with a Likert scale ranged ‘absolutely effective’ to ‘absolutely ineffective’. In this research ‘Absolutely ineffective’ was coded as 1; ‘Very ineffective’ as 2; ‘Neither effective nor ineffective’ as 3; ‘Very effective’ as 4 and ‘Absolutely effective’ as 5.

The last part of the survey was about pre-service teachers’ teaching intervention and contained 5 items. Participants were asked to assess the relationship and collaboration between pre-service teachers and teacher-tutors, and their level of the second language, coding their answers with a Likert scale ranged from ‘excellent’ to ‘poor’. In this study ‘Poor’ was coded as 1; ‘Fair’ as 2; ‘Good’ as 3; ‘Very good’ as 4 and ‘Excellent’ as 5. They were also asked to self-assess their own performance during the experience: how they planned lessons, the second language method used, and the resources used. Their answers were coded with a Likert scale ranged ‘absolutely effective’ to ‘absolutely ineffective’. As we have said previously ‘Absolutely ineffective’ was coded as 1; ‘Very ineffective’ as 2; ‘Neither effective nor ineffective’ as 3; ‘Very effective’ as 4 and ‘Absolutely effective’ as 5.

A team of experts collaborated in the design of the survey and provided the external validity. On the other hand, we calculated the Cronbach’s alpha to
know the internal consistency of the instrument. The high coefficient obtained ($\alpha=0.852$) implied that the measures were consistent and stable.

Regarding qualitative data, they were collected through individual semi-structure interviews. Researchers conducted a total of 57 interviews to go more deeply into pre-service teachers’ opinions towards the school-based Practicum experience. A team of coders collaborate in the coding of data. We carried out a process of revision to compare their encoding with ours in order to establish the levels of agreements that existed between them, the strong level of intercoder reliability, 86% of codes have a kappa score greater than 0.8, meant that the encodings were valid and determined the categories that were going to be part of the tree. On the other hand, qualitative internal validity was achieved since the criteria proposed by Coleman & Unrau (2010), and Hernández et al. (2014) were met: (a) The researchers gave specific details about: the context in which the study was carried out; the theoretical perspective; the criteria used to select the sample; the instrument used to collect the data; and the process about data collection and analysis. (b) The researchers promoted equal opportunities of participation to everybody; tried that their opinions did not influence the process of analysis; considered that all the data were relevant; and carry out a triangulation of methods using a mixed methods approach.

5. DATA COLLECTION AND ANALYSIS

Quantitative data were collected at the beginning of the second semester. Pre-service teachers completed the survey available in the virtual learning environment (VLE) of the subject Practicum II. Integration, Participation and Analysis of the Speciality of English. Once the process of data collection was finished, researchers processed the data. They introduced the data obtained in a data matrix that they had previously designed, and carried out descriptive and inferential analyses. Researchers used the programme SPSS 24 to analyse the data and the programme Microsoft Office Word 2011 to illustrate the results obtained.

Qualitative data were collected along two months in the second semester. Researchers carried out the necessary semi-structured interviews to reach theoretical saturation. At the beginning of each interview researchers introduced themselves, presented the main goal of the study and explained participants the process that they were going to carry out. They also informed participants the interviews were going to be recorded to facilitate their later transcription and analysis, and obtained the informed consent of the participants. Each semi-structured interview lasted around an hour. Once the fieldwork was finished, researchers processed ordered the data, it was followed the scheme proposed by Miles & Huberman (1994): a) data reduction, b) data
display, and c) drawing and verifying conclusions. Firstly, researchers carry out the separation of units according to thematic criteria, considering the units according to the theme tackled (Data reduction phase). Researchers used the line as a textual unit not to distort the meaning of the text. They identified and classified the elements through categorizing and coding of data units to recognize their thematic components and classify them in a certain content category. Categories were defined deductively, with a priori categories, and inductively, introducing modification when data were examined, so categories were renamed or eliminated. The software used to carry out categorizing and coding was NVivo. At the end of this phase it was carried out the synthesis and clustering which led to a physical grouping of the units belonging to the same category, synthesizing in a meta-category all the information that was contained in different categories with points in common.

Once the data reduction phase was finished, data were arranged in different charts and crosstabs (data display) using the programme Microsoft Office Word 2011 to illustrate the results obtained.

In the last phase of the process (drawing and verifying conclusions) researchers presented and interpreted the results, and extracted the main conclusions.

6. RESULTS

Based on the quantitative data gathered, the majority of pre-service teachers, 66.4%, (n=75) considered that the school-based Practicum experience was very good; 22.1% (n=25) stated that it was good; and 11.5% (n=13) affirmed that it was excellent.

Our findings indicate that the majority of pre-service teachers had a good perspective of the schools in which they did the practicum as it is showed in the results obtained in the dependent variables that referred to: organization of schools (item 7), architectonical characteristics (item 8), teaching resources (item 9), bilingual projects (item 10), specialized teachers (item 11), collaboration between staff (item 12), collaboration between staff and families (item 13), and collaboration between schools and other entities (item 14) (Table 1).

<table>
<thead>
<tr>
<th>Item</th>
<th>X</th>
<th>Sx</th>
<th>Excellent</th>
<th>Very good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 7</td>
<td>4.04</td>
<td>.533</td>
<td>15.9%</td>
<td>71.7%</td>
<td>12.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 8</td>
<td>3.90</td>
<td>.668</td>
<td>17.7%</td>
<td>54.9%</td>
<td>27.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 9</td>
<td>4.05</td>
<td>.515</td>
<td>15.9%</td>
<td>73.5%</td>
<td>10.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 10</td>
<td>3.46</td>
<td>.991</td>
<td>12.4%</td>
<td>45.1%</td>
<td>18.6%</td>
<td>23.9%</td>
<td></td>
</tr>
<tr>
<td>Item 11</td>
<td>3.82</td>
<td>.782</td>
<td>18.6%</td>
<td>49.6%</td>
<td>27.4%</td>
<td>4.4%</td>
<td></td>
</tr>
<tr>
<td>Item 12</td>
<td>3.84</td>
<td>.862</td>
<td>22.1%</td>
<td>47.8%</td>
<td>22.1%</td>
<td>8.0%</td>
<td></td>
</tr>
</tbody>
</table>
Pre-service teachers were also asked to assess the effectiveness of teacher-tutors’ performance. They were exactly asked about: plan of lessons (item 15), teaching-learning strategies (item 16), resources (item 17), and problem-solving strategies (item 18). The results obtained in these dependent variables were quite positive as we show in Table 2.

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>24.8%</th>
<th>52.2%</th>
<th>15%</th>
<th>8.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 15</td>
<td>3.94</td>
<td>.848</td>
<td>Absolutely effective</td>
<td>Very effective</td>
<td>Neither effective nor ineffective</td>
<td>Very ineffective</td>
</tr>
<tr>
<td>Item 16</td>
<td>4.16</td>
<td>.576</td>
<td>23.9%</td>
<td>69.9%</td>
<td>4.4%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Item 17</td>
<td>4.04</td>
<td>.972</td>
<td>34.5%</td>
<td>46%</td>
<td>10.6%</td>
<td>6.2%</td>
</tr>
<tr>
<td>Item 18</td>
<td>3.77</td>
<td>.973</td>
<td>17.7%</td>
<td>57.5%</td>
<td>13.3%</td>
<td>7.1%</td>
</tr>
</tbody>
</table>

Table 2: Statistics of the Dependent Variables of the Effectiveness of teacher-tutors’ performance

Regarding the results of the dependent variable that referred to the relationship and collaboration between pre-service teachers and teacher-tutors during the experience, the majority of participants, 71.7%, considered that it was very good (n = 81), 16.8% (n=19) assessed as excellent, and 11.5% (n = 13) as good.

Concerning the dependent variable that referred to participants’ self-assessment of their level of the second language, 37.2% of them (n=42) considered that it was good, 36.3% (n=41) stated that it was fair, 18.6% (n=21) indicated that it was very good, and just a small percentage of them, 8% (n=9) affirmed that it was excellent.

Participants were also asked to self-assess their own performance during the experience: plan of lessons (item 21), second language method used (item 22), and resources (item 23). The main results obtained in these dependent variables were between very effective and absolutely effective as we show in Table 3.

<table>
<thead>
<tr>
<th>Item 21</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>28.3%</th>
<th>48.7%</th>
<th>15.9%</th>
<th>5.3%</th>
<th>1.8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 22</td>
<td>3.90</td>
<td>.935</td>
<td>Absolutely effective</td>
<td>Very effective</td>
<td>Neither effective nor ineffective</td>
<td>Very ineffective</td>
<td>Absolutely ineffective</td>
</tr>
<tr>
<td>Item 23</td>
<td>3.90</td>
<td>.935</td>
<td>24.8%</td>
<td>53.1%</td>
<td>11.5%</td>
<td>8.8%</td>
<td>1.8%</td>
</tr>
</tbody>
</table>
In this subsection, we present the results obtained in the analyses carried out with the qualitative data. The relevant categories and subcategories emerged from the analysis were: Organization of Practicum (Learning Environment Management, Time, University Supervisor), Teacher-tutor (Teaching Practice, Feedback) and Pre-service Teachers (Teaching Practice, Self-assessment).

6.1. Organizing Theme: Organization of Practicum

Pre-service teachers pointed out that the school-based Practicum bought them the opportunity of observing the real context in which they would develop their future work. They stated they could learn about all the components of the learning environment such as the environment inside and outside the classroom, school documents and policies, members of staff (leadership team, teaching staff, etc.), relationship with families and entities around, and teaching resources. They considered that this experience helped them to acquire the necessary skill to manage a class, and brought them the possibility to put into practice all what they had previously learned at university being active involved in a real context of a classroom setting.

The majority of pre-service teachers emphasized that the duration of practicum was not appropriate since the time that they spent at school was very short. They believed that it was necessary to increase the duration of that experience to acquire the necessary skills, and have enough experience to be ready to be teachers and have the confidence to do it well.

The data analysis also revealed the university supervisors’ fundamental role as guides. Pre-service teachers emphasized that their help was fundamental for the success of the School-based Practicum. Although the majority of the participants considered that the university supervisors did a good guidance, some of them referred to their lack of guidance, and indicated that they were partial involvement in the process. Participants also emphasized the accurate and effective communication that always existed between them and the university supervisors. They referred to that communication as something essential to have a continuous contact between they and the university to solve all the problems that they could have during their stay at schools.

“That experience brings us the opportunity of knowing the organization of the school through practice.”

“We have had the possibility to learn about our future profession observing real classrooms and to acquire the necessary skills to manage a class.”

“It is the best way to put into practice what we have learned at university.”

“It has been a fantastic experience, but we haven’t had enough time. I think that we should be at school for a whole semester not just seven weeks.”
“I believe that the time we spent at schools has been very short. The duration of Practicum must increase.”
“I would like to emphasize the role of university supervisors. They have guided our process and have been constantly in contact with us to solve all the problems that we had.”
“Our communication with the university supervisor hasn’t been very fluent. I believe that they should guide our process in a more specific way.”

6.2. Organizing Theme: Teacher-tutors
The analysis also provided evidences of the opportunities that participants had to learn from teacher-tutors. They specifically referred to the possibilities that they had to learn how to select the most adequate method and strategies to teach specific contents in a second language (L2); how to plan teaching lessons; how to use resources; how to manage time; how to solve problems and how to assess pupil learning.
They also pointed out that the benefits of the feedback provided by teacher tutors during that period, specially the feedback that they received of their performances.

“Our teacher-tutors have been good examples of how to manage the class and to assess pupils’ progress.”
“My teacher-tutor had good knowledge and skills of the second language and this helped me to improve my level and to have a good experience during the Practicum”
“My teacher-tutor has a perfect level of English and this allows her to use the best method and strategies to teach contents in a second language.”
“She uses different resources and technological tools that motivated pupils, and improved the lessons and my experience.”
“They solve problems quickly and through dialogue. It has been a good experience.”
“My teacher-tutor has always guided me. He objectively observed me and provided me a positive and constructive feedback.”
“My teacher-tutor always explained to me what I had to do and helped me during the whole process with her advice and feedback.”
“Our teacher-tutor was very cooperative and flexible, and she always had into account our strengths and weaknesses to help us during Practicum.”

6.3. Organizing Theme: Pre-service Teacher
The data analysis also revealed that there was a significant impact of the practicum experiences in pre-service teachers’ teaching practice. They stated that they had the opportunity to self-assess their own performance during the experience. They considered that they needed to improve some aspects since they did not have enough experience to plan lessons in a perfect way. For example, they pointed out that they had problems to set the time of each
activity in the most appropriate way. They also had problems to set the number of objectives or contents that the pupil must acquire during a session. Participants pointed out the necessity of improving their level of the second language to use the most adequate second language method and to be able to improvise during the lessons. They considered that this reflection helped them to acquire the skills to manage a class.

“We have participated in an experience in which we could self-assess ourselves, how we acted during the lessons that we taught.”
“I believe that I should improve my level of English to teach in that language during the whole lesson.”
“I do not have an adequate level of English and this was a big problem during the teaching practice.”
“It was really a big challenge to teach the whole lesson in English”.”
“I prepared too many activities and we could not do some of them. I need to learn how to set time in my lessons.”
“I set too many goals for just a sixty-minute lesson. I need more practice.”
“The level of the activities was not adequate for the pupils. I should have taken into account what they had already learned.”

7. DISCUSSION AND CONCLUSIONS
To sum up, the results of our study proved that the pre-service teachers’ perspectives on their experience in a school-based practicum were rather positive. Some of the reasons for their positive perceptions included: (a) the opportunity of observing the real context in which they would develop their future works; (b) the possibility to acquire the necessary skill to manage a classroom; (c) the possibility to put into practice all what they had previously learned at university; (d) an experience to be active involved in a real context of a classroom setting; (e) a practice to learn from an experienced teacher; (f) and the constructive feedback received by teacher-tutors about their performances.

It is relevant to emphasize the great important that university supervisors’ guidance had had for the participants. They considered that this guidance and the dialogue with the supervisors were fundamental aspects for the success of the School-based Practicum. Although the majority of them considered that university supervisors helped them during the experience, some participants referred to the lack of guidance as one of the most negative aspects of the experience. Another negative aspects that they emphasized was the duration of the experience. They considered that it was not appropriate since the time that they spent at school was very short. These aspects must be taken into account to improve the quality of the experiences.
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Integrated strategy to investigate competence-based training and teacher development in Secondary and University education

María Concepción Domínguez¹, Fuensanta Hernández-Pina², Antonio Medina³, Ernesto López-Gómez⁴, Vito José de Jesús Carioca⁵, and Fernando Ribeiro Gonçalves⁶

¹Universidad Nacional de Educación a Distancia (Spain)  
cdominguez@edu.uned.es  
²Universidad de Murcia (Spain)  
fhpina@me.com  
³Universidad Nacional de Educación a Distancia (Spain)  
amedina@edu.uned.es  
⁴Universidad Nacional de Educación a Distancia (Spain)  
elopez@invi.uned.es  
⁵Instituto Politécnico de Beja (Portugal)  
vrcarioca@ipbeja.pt  
⁶Universidade do Algarve (Portugal)  
fgonc@ualg.pt

ABSTRACT
This contribution presents an integrated strategy to investigate competence-based training and teacher development at Secondary and University Education levels.

The proposed strategy focuses on conducting research that considers the relationship between the teaching approach centered on student competences and the professional development of teachers, using mixed research methods and case studies. The context of the research is situated in the transition between the secondary and university education stages in Spain. It is a question of harmonizing the teaching-learning processes oriented towards the integral training of competences that have been implemented throughout the entire educational system and, at the same time, to discover the impact of the teaching-learning processes oriented towards the training of student competences on the professional development of teachers.

KEYWORDS: teacher development, competences, secondary education, university, transition

1. COMPETENCE-BASED EDUCATION AND HARMONIZATION BETWEEN EDUCATIONAL STAGES
Current teaching-learning models are oriented towards the training and development of student competences, to ensure that students can successfully
face the challenges of the changing knowledge society as well as the new demands of the professional world. The research that we present relates to previous research that suggests the relevance of training students in the basic and professional initiation competences (Hernández Pina et al., 2009; Medina et al., 2009; Domínguez & García, 2012), and recognizes both their formative value and their projection in integral education, preparation for life and the development of their professional culture.

Although the discussion is quite broad, this paper considers the concept of competence as a combination and synthesis of knowledge, skills and abilities, supported by attitudes and values, that explain the peculiar way of projecting personality traits for the practical resolution of problems in a wide diversity of domains (Zabalza, 2007; Medina et al., 2013, Domínguez, Levi, Medina & Ramos, 2012, López, 2016). Competence training has been a major challenge, both for teachers and for the students themselves, since it involves very different ways of doing things. And it is especially necessary for both teacher and student to value competences which will serve as guidelines for improving the teaching-studying action.

The improvement and success of competency training requires that cycles are inspired by the principles of harmonization and continuity in the modalities, methods, tasks and didactic means, along with the other elements that make up the educational process. This requirement is especially relevant in the transition periods between the different levels, as is the case with the last course of the Secondary Education and its continuation into the first university course.

2. TEACHER TRAINING FROM AN APPROACH OF DEVELOPING STUDENT COMPETENCES

Teacher training has to harmonize the set of personal, academic and professional dimensions that characterize the teacher’s professional identity. The most relevant task for the transformation of the professional development models of teachers is the reflection and analysis of teaching practice, taking into account good practices, oriented to the mastery of basic and professional competences (Zabalza, Ciy & Trillo, 2014).

The literature review conducted by Muijs et al. (2014) emphasizes the idea that teachers who stimulate intense learning in students can develop a reflexive and formative practice aimed at ongoing improvement. In this regard, de Vries, Grift & Jansen (2013) conclude that teachers who assume a student-centered approach to teaching are more involved in their ongoing development throughout their professional lives.
The most solid arguments for selecting the processes applied to the development of student competences and their transfer to teacher training are presented below. These actions are aimed at developing the intended competences in the students while at the same time favoring teacher formation and development:

- Learn from the practice created to train students in the mastery of basic and professional competences.
- Identify the most relevant methods and resources to train students in the domain of competences.
- Determine the most decisive tasks, which have been applied in the didactic acts, to consolidate the desired student competences.
- Use the case study, didactic methodology and characteristic heuristics to advance knowledge of competences (Hamilton & Colbert-Whittier, 2013).
- Select the most relevant model, criteria and evaluation techniques to understand the level of progress and mastery of competences worked in the teaching-learning processes.
- Develop the most innovative teaching models for the consolidation of student competences.
- Identify the impact of the application of the various didactic decisions to reach an adapted scenario of competence development, as well as its impact on the integral education of students from an inclusive perspective.

3. METHODOLOGICAL BASES FOR AN INTEGRATED STRATEGY TO INVESTIGATE COMPETENCE-BASED TRAINING AND TEACHER DEVELOPMENT IN SECONDARY AND UNIVERSITY EDUCATION

The starting hypothesis of this research is: "The reflection and investigation of the teaching-learning process developed for the mastery of student competences (secondary and university levels) constitutes the essential basis for the continuous professional development of the teaching staff, in the training of educational competences". In other words, the goal is to discover the repercussions of the investigation and understanding of the teaching-learning processes oriented towards student competence training for professional development of the teaching staff.

In order to consider this research claim, we have selected a case study as the framework of this research and mixed method research to understand the reality of competence-based education and its impact on the development of secondary and university teachers.
This research has been conducted in a representative context, including secondary education schools from diverse regions of Spain (Madrid, Murcia, Andalusia and Castilla la Mancha), based on a multi-case study. To complement it, the study shall also include case studies from the first year of university studies (University of Murcia and UNED, Spain) to examine the generic competences and the transition between educational stages (baccalaureate-university).

3.1. The case study as a framework for research

The professional development of teachers and the mastery of teaching competences are accomplished with the implementation of teaching practices that focus on students and the development of their competences, using a reflective and inquisitive approach that is applied to the case study. The involvement of the institutions participating in the case study has been proposed, specifically the multi-case, longitudinal and reflective case study method (Hamilton & Colbert-Whittier, 2013), which generates processes of understanding of the various formative situations. This approach aims to capture a line of professional performance of secondary education and university teachers, in a process of continuity in the competence training (key competences in secondary education / generic competences in university) between both educational stages.

The main target groups are secondary education and first-year university teachers and, indirectly, university and secondary education students, proposing a transition between stages that stimulates the development of student competences from teaching-learning processes adapted to teacher demands during the professional development of the teachers and their training in the professional competences.

The participating teaching staff can take advantage of the research to be carried out in order to advance in their training and professional development, potentially transforming teaching practices into innovative actions for the professional development of teachers and institutions of secondary education and university. Furthermore, the teaching staff of the participating centers, as collaborators and research agents, will develop nuclear teaching competences: planning, communication, mentoring, motivation, methodology, media design, evaluation, research, innovation, institutional, intercultural and professional identity, etc. (Medina et al., 2013).
3.2. Mixed methods of research to understand competence-based training and its incidence in the development of teachers

This study will be conducted using a mixed methods design, implementing quantitative and qualitative methods. Quantitative techniques will be used to analyze questionnaire data collected from both teachers and students, and will allow for data analysis in terms of frequencies, central tendency, variability, etc. In addition, qualitative techniques will offer insight into interpretations and reflections made by participants involved in focus group discussions. By integrating both methodologies, the research questions will be thoroughly examined from different perspectives, which will provide solid evidence and allow for the drawing of conclusions. This, in turn, may potentially enable the generalizing of results and the generating of knowledge that would contribute to theory and practice.

Over recent decades, research experience has revealed the importance of gathering qualitative data in order to better understand quantitative results. Authors such as Creswell (2014) regard mixed methodology as a third research perspective while Johnson and Onwuegbuzie (2004) claim that a third paradigm arises when different methodologies are combined. Mixed methods designs have gained importance and have become the focus of attention over the past decade. An example of this is the creation and promotion of a research group that specializes in mixed methods by such important organizations as the European Educational Research Association (EERA). This focus on mixed methods is also found in other disciplines, such as agencies specialized in mixed methods (e.g., the National Institute of Health), as well as in the literature (e.g., Burch & Heinrich, 2016; Ivankova, 2015; Plano Clark & Ivankova, 2016). Finally, mixed methods are now increasingly used as research methodology in doctoral theses.

In addition, focus group discussions shall be conducted with teachers, one the one hand, and students, on the other, at each university and secondary institution participating in this study. The use of focus group discussions will permit a greater understanding of the map of competences identified. Each focus group will be made up of 4-8 participants and shall be led by a researcher with experience in conducting group interviews. In each group discussion, the interviewer will ask questions and debate will take place. All focus group discussion participants will share their responses to the set questions, as well as their reflections and opinions. Furthermore, participants are encouraged to expand on their answers beyond initial questions so as to provide a fuller picture of the competences used by teachers.

This study aims to learn what participants think about the competences used by teachers, and to do so, the interviewer should make sure to capture what the
participants actually say, regardless of how well the discussion was initially prepared. Thus, it is essential to have a recording that is as faithful as possible to the original in terms of what participants say; thus, all discussions will be recorded with electronic devices such as a tape recorder, as well as by note-taking (Fraenkel & Wallen, 2015). Patton (1990) suggests that notes may serve at least two objectives: first, if taken during the course of an interview, they may help the interviewer to formulate new questions, especially when something mentioned earlier needs to be checked or confirmed; and second, notes will help analyze data by locating quotations in the tape recordings. Finally, if notes are not taken, the interviewee may get the impression that nothing of what is being said is relevant.

4. ANTICIPATED RESULTS AND FINAL REFLECTIONS.

Clearly, this project has just begun and in this contribution, we only present the strategy that has been proposed for its development.

The project contributes an innovative line, identifying the most representative and higher quality teacher and student competences for the professional development of the teaching staff and the integral education and training of the students, contributing to the challenge of the harmonization and development of student competences between the final secondary education course and the first university course.

The project seeks to strengthen the existing harmonization between the levels of secondary and university education to enhance the continuity of the transition between educational stages. In fact, as Domínguez, Levi, Medina & Ramos (2012) point out, in secondary school we find the use of tasks such as: taking notes, homework, diagrams, summaries, insistence on daily study; University professors however propose distinct types of tasks: problem solving, debates, projects, research, etc. Also, at the secondary level, the assessment focuses heavily on the preparation of university entrance exams and traditional exams. At the university level, new types of assessment are introduced, such as group work, internships, continuous assessment, etc., which are rarely used at the pre-university level. Reality teaches us that in the secondary education curricula, the authentic discourse of the competences has not been introduced in its true extension, but focus mainly on training students to surpass the academic demands established by universities for access to the upper cycle, particularly over the last year.

The originality and authentic innovation highlighted in this proposal are:

- It implicates a large number of secondary and university education teachers in the formative method of educational innovation based on the
INTEGRATED STRATEGY TO INVESTIGATE COMPETENCE-BASED TRAINING AND TEACHER DEVELOPMENT IN SECONDARY AND UNIVERSITY EDUCATION

integral development of the most valuable competences demanded by today’s society in this crucial stage of student education that is the final year of secondary and the first year of university studies.

- It converts teachers into researchers of the practice.
- Its starting point are student competences as the basis of the teacher’s professional development.
- Overall improvement of the institutions, examined as case studies, as learning communities upon converting learning into a process of innovation and study.

This project seeks the integral development of the faculty, making it possible to define and generate models and practices experienced in the secondary education centers and university, to consolidate a new training space from the multi-case study methodology by applying mixed method research. Mixed methods, especially those of a qualitative nature, allow for a self-learning experience.

It is a question of generating a cyclical and holistic process in which the investigation of teaching practices carried out in classrooms and committed to the training of students in the domain of competences is the basis for strengthening the models of ongoing professional development for teachers (De Vries, van de Grift & Jansen, 2013), resulting in the improvement of educational practices based on teacher beliefs (Fives & Gill, 2015). Each teacher demands a more updated didactic approach and a redefining of the teaching-learning process.

The project’s socio-educational impact will make it possible to transform teachers’ professional development models and to increase teacher involvement in practice and orientation towards the domain of generic and professional competences of students (citizens and future professionals). Institutional development and innovative culture will be developed through the competences model that will be consolidated in the participating centers and universities.

It is anticipated that the results of the case studies will help us to understand and further examine the reality of competence education and the harmonization between educational phases. At the same time, a transfer of results is expected which will affect the educational policy of the participating regions while attaining valuable results in the on-going education of secondary education and university teachers.
ACKNOWLEDGEMENTS
This contribution is part of the research project "Development of competences and their impact on teacher training: harmonization of educational processes between secondary and university education" (EDU2016-78451-P), recently funded for the next three years by the Ministerio de Economía y Competitividad (Spain).

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INTEGRATED STRATEGY TO INVESTIGATE COMPETENCE-BASED TRAINING AND TEACHER DEVELOPMENT IN SECONDARY AND UNIVERSITY EDUCATION


Providing the Competencies for the Future in University. A Case Study

Andron Daniela Roxana

Lucian Blaga University of Sibiu, Romania
daniela.andron@ulbsibiu.ro

ABSTRACT
In January 2016, the World Economic Forum Annual Meeting in Davos adopted a challenging main theme – The Fourth Industrial Revolution, a stage that will fundamentally reshape work frames, communication and all human activities that will consequently be expected to adapt to this major shift. Educational systems should be the first to react, as the new working force is expected to perform in rather different competencies domain. More specific, the Future of Jobs Report issued by World Economic Forum confirms the shift in competencies demanded for the graduates that will start their professional journeys in the next years, drawing a competence chart for the 2020 graduates aiming to configure successful careers. New competencies - cognitive flexibility, negotiation, service orientation, judge and decision-making, emotional intelligence, coordinating with others, people management, creativity, critical thinking and complex problem-solving - should be reached not only by personal effort of each professional, aware that long-life learning, re-skilling and up-skilling programs are the way to adapt, but also by changing the educational paradigm, which involves certain effort of the educational systems. As universities are the main providers for the future specialists, we should have a conscious look at the teaching and assessment we provide, in search for the proper focus on these competencies. The present paper aims to identify the most effective academic approaches of these abilities in teaching and assessment and whether the University staff consciously intends building such competencies.

KEYWORDS: competencies, academic background, teaching, assessment.

1. INTRODUCTION
A first look at the statements presented by the abstract might lead to the idea that "to do" has become more important than "to know" which is not at all the idea of the paper. Also, the competencies for the future are not compulsory; these are directions to be considered when a practical approach of the students’ academic background is intended. Building competencies shouldn't neglect providing of solid and valuable knowledge, and this will be valid in the future as it is now. Times are changing generating a dynamic and challenging shift
towards this practical approach of learning; thus, teaching should focus not only on meeting students’ learning needs but also on building the right attitude and developing the highly specialized skills demanded by the successful start of their careers. Lucian Blaga University of Sibiu provides academic programs within its nine faculties; the present paper aims to analyze - by questioning teachers about their teaching and assessment - the way of adapting the didactic processes to the requests for new competencies of the working force of tomorrow, being trained here today. Although the idea that education is not adapting quickly enough to meet the demands of the transforming society is frequently upheld, efforts are continuously made and creative approaches have become the main concern of teachers, given the global trends and challenges imposing to education systems new demands – empowering students to shift from thinking linearly to more innovative and sophisticated ways of solving complex problems.

2. THEORETICAL FRAMEWORK

Teaching for the 21-st Century competencies should thus focus on the learners’ needs for solid knowledge, adequate skills that will allow better adapting to the professional environment and a proper engagement in the socio-economic environment, capability and determination for life-long learning, as adaptation ability. According to the Center for Curriculum Redesign ("Four-Dimensional 21-st Century Education…", 2015) knowledge needs to be shared by means of the interdisciplinary approach while the use of this knowledge (the skills) proves to be of equal importance and refers to creativity, critical thinking, communication and collaboration. According to the CCR Framework, the complete learning profile should equally refer to how the learners will behave and engage in the world, so teaching needs to consider building character by developing mindfulness, curiosity, courage, resilience, ethics and leadership. Above all, meta-cognition and the growth mindset allow students to adapt by providing conscious development. Individuals have psychological, safety, belonging, esteem, self-actualization and self-transcendence needs that have to be met, the society aiming to meet such needs by means of educational systems. The discussion on the gap between the skills people learn and those they need is spreading and gets more controversial at different levels of social and economic development, as the economical environment demands the increase in new, less formal skills included in the social and emotional learning (SEL) area of the educational concern. This is the result of the increasing need for specialists able to collaborate, communicate and solve problems, not only capable to demonstrate the traditional skills and knowledge in their specific area of competence. Teaching for such skills requires specific general strategies, such as dividing learning into coordinated
Providing the Competencies for the Future in University: A Case Study

modules, creating a safe environment for learning, developing a growth mindset, allowing time to focus, foster reflective reasoning and analysis, provide adequate challenges, and clearly defined targeted strategies for the range of competencies and character qualities that need to be developed. Such targeted strategies include: offering constructive feed-back for independent work (developing critical thinking and problem-solving), providing autonomy to make choices and opportunities to build and innovate (building creativity), proposing opportunity to work in groups (thus enhancing collaboration and communication) and continuously focusing on character qualities of students (Soffel, 2016). Students should develop curiosity (by autonomous working, questioning) and initiative (facilitated by long-term, engaging projects and autonomy in making choices), persistence (having the opportunity to learn from failure) and adaptability (thus teaching should be flexible yet structured). Encouraging empathy and fostering the ability to negotiate, teaching processes empower students’ leadership while social and cultural awareness is built and consolidated by encouraging practices of respect and tolerance for others and cultural self-awareness.

According to Peter Senge, learning means interconnections being guided by vision, thus each organization is the outcome of the thinking and interconnection patterns of all its members (Senge, 2012). The teaching philosophy shared within an academic institution might thus define the graduate competencies profile given the main components of organizational learning – shared beliefs founding direction of action, innovation in organizational structure (referring not only to infrastructure, but mainly to decision, relations and implicit practice) and theories, techniques, instruments and methods. (Senge, 2012). Teaching should thus focus on the main four questions (Engeström, 2009) that define processes and activities: Who are the subjects of learning?; Why do they learn? (identifying motivation); What do they learn? (content and results of learning) and how do they learn (key-activities in learning processes). Providing the skills for the future by teaching should be considered under a pragmatic approach, according to Dewey's concept focusing on creativity and innovation, which leads to a greater need for research, critic and reflexive thinking. Academic learning environment should provide teaching, assessment and connected activities that allow free and complete participation of students, according to the conditions for adult learning formulated by Habermas, such as (Mezirow, 2009): complete and accurate information, lack of limiting constraints or anxiety, opening for alternative opinions, empathy, understanding, ability to judge and assess, understanding the general context in order to critically evaluate assumptions and availability of equal opportunities to involve in debate.
Not only teaching should focus on challenging methods, techniques and instruments aiming to develop systemic thinking but also assessment should be a learning path. The forms of assessment (Kallic, 2012) adapted for the academic level consist of the summative assessment (final exams), and the formative assessment, providing information on progress, difficulties and success (projects, research, assignments, partial exams). The most important, assessment intended to be part of the learning process will provide valuable feedback that will help students to improve own performance, to set priorities and settle objectives, to undertake responsibility, monitor own progress, thus gaining valuable autonomy and being able to internalize self-assessment competence.

3. METHODOLOGY.

The paper aims to reveal the academic approach of some of these abilities, by means of the instructional processes considered in the university in the effort of building competencies, as shown by teachers themselves; the survey intended to identify, by means of a questionnaire addressed to all the teachers of the university, their opinions/positions referring to:
1. The main directions for setting the teaching objectives in respect of the key-competencies considered
2. The most used working frames for the academic interaction intending to generate knowledge and/or build competencies
3. The perceived competence profile of the students
4. The most suitable teaching interactions coveting new competencies
5. Harmonization of teaching, assessment and students' needs

A set of nine questions was conceived according to the theoretical frame previously considered. Answers were rated on a 0-5 scale, according to the importance attributed or frequency of use and the weighted average for each answer was considered in analysis. Answers have been collected from 104 teachers of the university, a valid sample lot for the purpose of this survey. The Hofstätter calculus of the error margin results in a value of 3.69% error which is acceptable, given the homogenous sample (activities, social environment, opinions/attitudes); still, results of this survey apply mainly to four out of the nine faculties.

4. RESULTS.

The response rate, revealing the interest of the academic staff for the proposed theme was 17.17%. Response rates exceeding this value were registered for the Economical Sciences Faculty (28.3%), Social Studies and Humanities Faculty (25.7%), Law School (23.5%), Agricultural Sciences, Food Industry and
Providing the Competencies for the Future in University. A Case Study

Environmental Protection Faculty (19.6%), Engineering Faculty (19.3%). The numerical repartition of the answers received, defining the representative academic competence area for the survey results is shown in Figure 1.

The main instructional objectives of the academic staff resulting from the data analysis reveal the distribution of the weighted averages as shown in Table 1.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Main objectives</th>
<th>Score (0-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1. Wider knowledge</td>
<td>Knowledge (volume)</td>
<td>3.77</td>
</tr>
<tr>
<td>1.2. Durable, conscious knowledge</td>
<td>Logical connections</td>
<td>4.63</td>
</tr>
<tr>
<td>1.3. Developing thinking systems</td>
<td>Material classification abilities</td>
<td>3.98</td>
</tr>
<tr>
<td>1.4. Specific professional competencies</td>
<td>Applying theory in practice</td>
<td>4.66</td>
</tr>
<tr>
<td></td>
<td>Conscious decision capabilities</td>
<td>4.51</td>
</tr>
<tr>
<td></td>
<td>Complex problem-solving</td>
<td>4.13</td>
</tr>
<tr>
<td></td>
<td>Creativity</td>
<td>4.32</td>
</tr>
<tr>
<td>1.5. Social competencies</td>
<td>Negotiating abilities</td>
<td>3.57</td>
</tr>
<tr>
<td></td>
<td>Team co-ordination and integration</td>
<td>4.11</td>
</tr>
<tr>
<td></td>
<td>Emotional intelligence</td>
<td>3.84</td>
</tr>
</tbody>
</table>

Table 1: Main instructional objectives scores
As far as social intelligence and attitudinal objectives are concerned, these have been detailed by providing the most important formative directions considered by the respondents:

<table>
<thead>
<tr>
<th>Social Abilities</th>
<th>Scores</th>
<th>Attitudes</th>
<th>Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respect for social norms</td>
<td>4.45</td>
<td>Professional responsibility</td>
<td>4.79</td>
</tr>
<tr>
<td>Socio-professional involvement (Erasmus programs, conferences attendance, students' associations)</td>
<td>4.35</td>
<td>Free opinions, capability to stand for own opinion</td>
<td>4.65</td>
</tr>
<tr>
<td>Socio-professional orientation</td>
<td>4.11</td>
<td>Sustained effort capability</td>
<td>4.25</td>
</tr>
<tr>
<td>Social involvement (volunteering)</td>
<td>4.04</td>
<td>Professional involvement (having a job while being student)</td>
<td>3.33</td>
</tr>
<tr>
<td>Leadership</td>
<td>3.98</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Major formative objectives of teachers

Identifying of the favorite working frames in order to determine whether the didactic interaction aims to provide knowledge or/and competencies considered five main directions in analyzing results: orientation towards knowledge (volume and quality), training independent thinking and decision-making processes (by means of individual projects, individual study assignments), supporting group relations (by working in small groups of students – group projects) and training of social abilities (by working in larger teams). The same issue was considered from the perceived students' favorite interaction. Results are presented below.

<table>
<thead>
<tr>
<th>Preferred interaction</th>
<th>Academic staff</th>
<th>Scores</th>
<th>Students</th>
<th>Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Frontal</td>
<td>3.15</td>
<td>Lectures</td>
<td>4.05</td>
</tr>
<tr>
<td>Independent thinking</td>
<td>Individual projects</td>
<td>2.4</td>
<td>Individual projects</td>
<td>3.76</td>
</tr>
<tr>
<td></td>
<td>Individual study</td>
<td>3.01</td>
<td>Research</td>
<td>3.49</td>
</tr>
<tr>
<td></td>
<td>Case studies</td>
<td></td>
<td></td>
<td>4.02</td>
</tr>
<tr>
<td></td>
<td>Brainstorming, focus group</td>
<td></td>
<td></td>
<td>3.51</td>
</tr>
<tr>
<td></td>
<td>Problem-solving</td>
<td></td>
<td></td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>Socratic seminar</td>
<td></td>
<td></td>
<td>2.82</td>
</tr>
<tr>
<td>Group relations</td>
<td>Small groups</td>
<td>3.09</td>
<td>Group projects</td>
<td>3.48</td>
</tr>
<tr>
<td>Social abilities</td>
<td>Team-work</td>
<td>2.92</td>
<td>Applicative activities</td>
<td>4.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Debate</td>
<td>3.95</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Workshop</td>
<td>2.97</td>
</tr>
</tbody>
</table>

Table 3: Preferred academic interaction

The question referring to the perceived competencies profile of the students considered 20 traits that might define moral profile, cognitive capacities, career
Providing the Competencies for the Future in University. A Case Study

development, social integration and effective relationship. The answers were rated on the same scale (0-5) thus the students of the university are described by the academic staff generating a competence profile presented below.

![Figure 2: Students’ competencies profile drawn by academic staff](image)

Teaching methods are not instruments for implementing competencies; they address domains of interconnected competencies. Thus, methods have been considered according to the competencies these generally address, as shown below:

<table>
<thead>
<tr>
<th>Teaching methods</th>
<th>(Scores)</th>
<th>Cognitive capacities</th>
<th>Enhancing thinking</th>
<th>Social intelligence</th>
<th>Creativity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>4,05</td>
<td>4,05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case study</td>
<td>4,02</td>
<td>4,02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brainstorming, Focus group</td>
<td>3,51</td>
<td>3,51</td>
<td>3,51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td></td>
<td></td>
<td>3,49</td>
<td>3,49</td>
<td>3,49</td>
</tr>
<tr>
<td>Group projects</td>
<td></td>
<td></td>
<td>3,48</td>
<td>3,48</td>
<td></td>
</tr>
<tr>
<td>Individual projects</td>
<td>3,76</td>
<td>3,76</td>
<td></td>
<td></td>
<td>3,76</td>
</tr>
<tr>
<td>Problem-solving</td>
<td></td>
<td></td>
<td>3,7</td>
<td>3,7</td>
<td></td>
</tr>
<tr>
<td>Applicative activities</td>
<td></td>
<td></td>
<td>4,16</td>
<td></td>
<td>4,16</td>
</tr>
<tr>
<td>Debate</td>
<td>3,95</td>
<td></td>
<td></td>
<td></td>
<td>3,95</td>
</tr>
<tr>
<td>Socratic seminar</td>
<td></td>
<td></td>
<td>2,82</td>
<td></td>
<td>2,97</td>
</tr>
<tr>
<td>Workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,97</td>
</tr>
</tbody>
</table>

Table 4: Predilection for teaching methods
Assessment was questioned according to two related criteria – suitable assessment types and modalities, results being displayed below.

![Figure 3: Assessment](image)

5. IMPLICATIONS/DISCUSSION.

The main directions for setting the major objectives of teaching reveal the teaching frameworks and the orientation towards knowledge and competencies to be provided. The weighted averages of the scores show that the most important objectives refer to the area of specific professional competence (applying theory in practice and conscious decision capabilities) and the area of durable and conscious knowledge (aiming for the capability of logically connecting the material). Social abilities of the students and management of the human interconnection seem not to be priorities of the instructional interaction, remaining only background objectives. When formative objectives aiming to attitude and social expression of students' activities are discussed, the obvious teachers' orientation points to personal and professional responsibility as well as freedom in expressing and standing for one's opinion; surprisingly (even contradicting), professional involvement and leadership are the least important of the listed social abilities, although these are clearly interconnected or determinant for the professional responsibility and the courage of expressing oneself. This situation might reveal either a lack of coherence in the formative effort of the academic staff, or the incomplete/superficial approach of the formative aspect of the students' evolution, the scientific aspect being the major concern of the academic staff.
The scores reveal the inexistence of a predilection for certain interaction patterns; an important use of frontal interactions does not show high score, thus leading to the conclusion that the frontal approach is combined with group work, usually in the seminar groups. The lowest score is revealed for individual work, which might show lack of stimulating the independent thinking and decisional processes of students, who actually show greater interest in this direction. As far as students are concerned, they seem to prefer a more practical and personalized approach, preferring applicative activities, team-work, and activities outside the University, which their teachers apparently don't favor.

In drawing a profile of the students' capabilities (Fig. 2) teachers determined that the cognitive capacities are the best represented – potential (native intelligence) and dynamism being the most important, while curiosity and cognitive flexibility received lower scores. The scores for creativity and its forerunner, divergent thinking being rather low shows the directions for future intervention. For the moral profile, scores for responsibility/non-involvement imply that students are rather not involved; they excel neither in ethical and civic sense nor in courage and shouldering decisions. Career focus shows scores slightly higher than the average of the scale, the lowest scores being those for effort undertaking, entrepreneurship and grit. Correlating scores for socio-professional focus and lack of career orientation shows the real need for better counseling on career opportunities. The best performance of the students perceived by their teachers is multi-tasking. For the students' social integration, the scores for emotional intelligence and negotiating abilities bring new evidence on the need of better team-work. The efficient relationships are mostly determined by the native potential, optimism being the highest score.
characteristic. Collaboration within teams is slightly better than efficient communication which reveals opportunities for team-work (confirmed also by the teachers' interaction patterns) but also certain need for improving such competencies. The survey shows that teaching mainly addresses thinking development; it doesn't neglect creativity but still it's not focusing on communication and social abilities. The favorite methods are applications, case studies, debates and lectures and the least used are workshops and Socratic seminar. The most suitable assessment seems to be oral examination, encouraging communication and negotiation abilities, critical thinking (Fig.3). The practical assessment, involving team coordination, problem-solving, relieves a lower score than applicative activities used in teaching. The written exam, involving mostly knowledge (volume, effort capacities, cognitive flexibility, classification, logic connections) is less suitable and alternative methods (portfolio, seminar activities, essays) are the least suitable, teachers say. It seems that partial assessments are largely used to complete summative assessment but each of these two modalities is widely used independently. Partial assessment only might not be relevant enough, while summative assessment by final exam is undesirable (lack of feed-back, higher cumulative efforts to the prejudice of flexible thinking and creativity, lower importance in building competencies, frustrating for students and rather irrelevant for the teacher). Modalities enhancing creativity, social abilities, autonomy in the professional development are not enough used - students' products, achieved individually or within a team show rather lower scores.

6. CONCLUSIONS
The response rate reveals a rather low interest for the theme. Focusing on targeted intervention in order to develop valuable competencies should be a priority for the academic staff as the job requirements are clearly shifting towards more practical visions and social abilities are increasingly important. University needs to improve its career development counseling services, to undertake a major shift in teaching interaction promoting better team-work and focus on improving social competencies of the students. Teaching and assessment addressing social intelligence are insufficiently used despite the acceptance of its importance. The report has also been demanded and transmitted to the vice-rector of the university, in order to acknowledge its results and conclusions.
REFERENCES


Pedagogic training disciplines of the Program for Teaching improvement in the post-graduation of the USP campus of Ribeirão Preto: challenges and possibilities

Noeli Prestes Padilha Rivas¹, and Glaucia Maria da Silva²

¹Universidade de São Paulo/FFCLRP/Departamento de Educação, Informação e Comunicação
noerivas@ffclrp.usp.br
²Universidade de São Paulo/FFCLRP/Departamento de Química
glaciams@ffclrp.usp.br

ABSTRACT
In this work are presented the analysis related to the curriculum of 31 pedagogical training disciplines of the Program of Teaching Improvement (PAE) in the Graduate of the USP Campus of Ribeirão Preto. It is assumed that discussion about the teaching training for higher education have increased in relation to training for research, pedagogic fields and multidisciplinary and multicultural interfaces. Four categories were elaborated for the program and bibliographic references studies by Bardin analysis of content: Higher education theoretical foundations, public policies, teaching, curriculum and didactic-pedagogic knowledges. These categories comprehend the pedagogic knowledge aspects necessary for the higher education teaching training and they are based on Gatti’s proposal. In relation to the program, had been verified the predominance of the aspects related to the curriculum and the didactic-curricular knowledges. For the bibliography, the most frequently books were Teaching in Higher Education (Pimenta and Anastasiou); Teaching and learning processes in the university: assumptions for the strategies of class work (Anastasiou and Alves) and University Teaching, its scene and its protagonists (Zabalza). The PAE disciplines, in their majority, have highlighted the didactic and methodological preparation for higher education teaching in an instrumental perspective, putting in second plan the theoretical, epistemological, political and pedagogical conjectures of the teaching practice. However, they represent one of the few formative spaces for the valorization of pedagogical training and collective reflection on teaching practice in a universe where the training of researchers is prioritized.

KEYWORDS: Didactics, curriculum, program for teaching improvement, higher education.

1. INTRODUCTION
This work presents analyses related to the curriculum of 31 pedagogical training disciplines of the Graduate Program for Teaching Improvement (PAE
Program) of the University of São Paulo, campus of Ribeirão Preto, Brazil. It deals with the pedagogical training of teacher and disciplinary fields of science.

2. THEORETICAL FRAMEWORK

Teacher training for higher education has become more pronounced in terms of training for research, mastery of the pedagogical field, and multidisciplinary and multicultural interfaces with the disciplinary fields of science. Investigate the teacher training in higher education, assures us a significant challenge in the field of scientific research, in the sense of seeking data and information that elucidate the debate, the development of critical and reflective consciousness about the role of the university and its importance, not only for the professional of excellence in scientific and technical knowledge, but above all, in critical knowledge immersed in the values of human formation.

The central theme is in the context of the Postgraduate Program of the University of São Paulo, taking as reference the Program for Teaching Improvement. In general, it covers aspects related to university education in the field of curriculum and teacher training for Higher Education.

Teacher training and its relation to the curriculum are associated to contextualized educational policies and they are vulnerable as a result of current policies and strategic changes which affect the university. Studies have pointed out that the university, maintained by contradictions and dissent, is experiencing a significant crisis scenario, whose asymmetries impact the teachers work, with repercussions on student learning.

The teacher training for higher education, in the context of the Program of Teaching Improvement, is intended to enable pedagogical training for higher education, bringing the human dimension of the teacher, which presupposes an understanding of teaching meaning.

The teaching, understood as a complex action, requires, from the subject in formation, not only the specific area and pedagogy knowledge, but also the understanding of the Institution as a whole, becoming relevant for the teacher to know the space in which the teaching, research and extension takes place, as well as external influences that affect the work of the higher education teacher.

The guiding principles of teacher training in higher education are constituted by the articulation between theory and practice, practical and theoretical knowledge and disciplinary and pedagogical dimension of the contents that are addressed in Higher Education. There are several conceptions that permeate teacher training, among them the ones discussed by Almeida, 2012; Cunha, 2010, 2013; Nóvoa, 2009; Pimenta, 2002; Pimenta & Anastasiou, 2005; Zabalza, 2007.
3. METHODOLOGY.

This qualitative research used the Documentary Analysis (Cellard, 2008), and Content Analysis (Bardin, 2002) and quantitative data (Bauer & Gaskel, 2002) for data collection and analysis.

The methodological route began with a survey on the site from the Office of the Graduate Studies at USP (http://www.prpg.usp.br/?page_id=802) of the disciplines for the Pedagogical Preparation Stage of the PAE Program, offered in the Ribeirão Preto USP's graduate programs. In this survey, the disciplines described as "deactivated for new classes" were not considered. The 31 disciplines found were separated according to the unit of USP to which they were linked and they were identified by letters and numbers. Next, we searched the teaching programs of the selected disciplines in the page of the Janus System of the Graduate (https://uspdigital.usp.br/janus/comum/entrada.jsf).

In order to study these teaching programs, the following categories were constructed based on the document "Guidelines for the Disciplines of the Pedagogical Preparation Stage Of the Postgraduate Pro-Rector's Office" and Gatti's proposal (2010): Theoretical Foundations of Higher Education, Public Policies, Teaching, Curriculum / Didactic-Curricular Knowledge and others.

4. RESULTS.

At the USP campus in Ribeirão Preto, seven Units offer forty-eight Graduate Programs: Medical School (FMRP) twenty-two; Faculty of Philosophy, Science and Letters (FFCLRP) seven; Nursing School (EERP) five; Dentistry College (FORP) and Faculty of Pharmaceutical Sciences (FCFRP) four each; Faculty of Law (FDRP) and Faculty of Economics and Administration (FEARP) three each.

In relation to the number of disciplines of the PAE Program, their distribution by the seven units can be seen in Table 1. The FMRP offers 14 disciplines; EERP six; FFCLRP four; FCFRP, FEARP and FORP two each and FDRP only one. So, the health is the area that has the largest number of PAE disciplines (77%), that is, it is the area that presents the greatest demand for these disciplines.

The explanation for the expansion in the health area may be related to the public policies that induce the Ministry of Health and the increase in number of his undergraduate courses. In this area, has occurred the accumulation of crises and questionings such as epidemiological and demographic transitions, people self-care, user autonomy, rapidity of production and obsolescence of knowledge, understanding of the expanded concept of health besides different health practices. These facts, coupled with institutional factors such as the Law
of guidelines and bases of national education (LDB) and national guidelines for courses in health area, stimulated changes and required new alternatives for intervention in curricula and articulation towards social needs. There were also reflexes in the Brazilian Unified Health System (SUS) that was constituted with the purpose of making social justice by attending to this demand to update the health care model.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Discipline</th>
<th>Symbol</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EERP</td>
<td>University Teaching in Health: Professional Identity Formation</td>
<td>A1</td>
<td>60h</td>
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<td></td>
<td>Teaching-Learning Process Planning in the University Context</td>
<td>A2</td>
<td>45h</td>
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<td></td>
<td>Pedagogy in Nursing</td>
<td>A3</td>
<td>45h</td>
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<tr>
<td></td>
<td>Pedagogical Paradigms of the Teaching Practice in Health</td>
<td>A4</td>
<td>45h</td>
</tr>
<tr>
<td></td>
<td>Health Teaching: Knowledge and Practices</td>
<td>A5</td>
<td>60h</td>
</tr>
<tr>
<td></td>
<td>University Teaching: Conceptions, Professionalism and Didactic</td>
<td>A6</td>
<td>90h</td>
</tr>
<tr>
<td>FCFRP</td>
<td>Fundamentals of Teaching Practice in Higher Education</td>
<td>B1</td>
<td>60h</td>
</tr>
<tr>
<td></td>
<td>Introduction to teaching in Higher Education</td>
<td>B2</td>
<td>45h</td>
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<tr>
<td>FDRP</td>
<td>Dialogues on Teaching in Higher Education: Theory and Practice</td>
<td>C1</td>
<td>45h</td>
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<tr>
<td>FEARP</td>
<td>Didactics</td>
<td>D1</td>
<td>90h</td>
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<td></td>
<td>Didactics of Accounting Education</td>
<td>D2</td>
<td>60h</td>
</tr>
<tr>
<td>FFCLRP</td>
<td>Higher Education: Context, Production of Knowledge and Teaching</td>
<td>E1</td>
<td>60h</td>
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<td></td>
<td>Teaching in Higher Education: Didactic and Pedagogical Aspects</td>
<td>E2</td>
<td>60h</td>
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<td></td>
<td>University: Training, Teaching and Production of Knowledge</td>
<td>E3</td>
<td>90h</td>
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<td></td>
<td>Teaching in Higher Education: Theoretical-Methodological Foundations</td>
<td>E4</td>
<td>90h</td>
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<tr>
<td>FMRP</td>
<td>Active Teaching-Learning Methodologies in Health Area Courses</td>
<td>F1</td>
<td>45h</td>
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<td></td>
<td>Educational Evaluation of Clinical Competencies</td>
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<td>45h</td>
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<td></td>
<td>Application of Didactics Principles in Theoretical Classes</td>
<td>F3</td>
<td>45h</td>
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<td></td>
<td>Teaching Action in Scientific Initiation</td>
<td>F4</td>
<td>75h</td>
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<td>Field Work of Research Professor</td>
<td>F5</td>
<td>75h</td>
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<td>Topics in Education in Health Professions I</td>
<td>F6</td>
<td>90h</td>
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<td></td>
<td>Topics in Education in Health Professions II</td>
<td>F7</td>
<td>90h</td>
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<td>Special Topics in Teaching Practice and Research</td>
<td>F8</td>
<td>60h</td>
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<td></td>
<td>Didactics for Higher Education: Theoretical-Methodological Foundations</td>
<td>F9</td>
<td>60h</td>
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<td>Pedagogy and Special Didactics in the Gynecology and Obstetrics Program</td>
<td>F10</td>
<td>90h</td>
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<td>Use of Information and Communication Technology (ICT) in Health Education</td>
<td>F11</td>
<td>45h</td>
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<td></td>
<td>Didactic and Pedagogical Aspects in Clinical and Surgical Specialties</td>
<td>F12</td>
<td>60h</td>
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<td></td>
<td>Teaching Methodology in Small Groups</td>
<td>F13</td>
<td>45h</td>
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The table 1 also shows the timetable of the PAE disciplines. The majority of disciplines (35.5%) have 45 hours; the disciplines of 60 hours represent 29%, followed by disciplines of 90 hours, which represent 25.8%. The diversity of the disciplines timetables can represent the place that these pedagogic disciplines occupy in the graduate courses, considering that it is the locus of the research.

The content topic of the teaching programs, in turn, were analysed in accord to the categories indicated at the methodology. The results show that the *Didactic and Curricular Knowledge* category represents 51% of the total, followed by the *Theoretical Foundations of Higher Education* category (17%) and the *Others* category (15%). So, the contents of the Teaching Programs are interpreted in the context of the Curriculum.

Regarding the Bibliography topic, in the category *Theoretical Foundations of Higher Education*, several works are highlighted, mainly the “Autonomy of the Professor” by Paulo Freire and the “University of the 21st Century” by Boaventura Souza Santos. In the category *Public Policies in Higher Education*, stand out documents that deal with Brazilian legislation regarding curricular guidelines and teaching legislation. The works of Maria Isabel da Cunha, especially the book “Trajectories and places of formation of university teaching: from the individual perspective to the institutional space”, are the most frequently cited in the category *Teaching at Higher Education*. In the category *Didactics and Curricular Knowledge*, can be highlighted the books “Teaching in Higher Education” by Pimenta & Anastasiou, “Teaching-Learning Processes in the university: assumptions for the strategies of work in class” of Anastasiou & Alves and “University Teaching, its scenario and its protagonists” by Zabalza.

5. IMPLICATIONS/DISCUSSION.

The category *Didactics and Curricular Knowledge* is being contemplated by the most part of the PAE disciplines offered by the teaching Units from the Ribeirão Preto USP campus. However, there is a multiplicity in their denominations that extrapolate the teaching knowledge and turn to the specificity of vocational training in the different sub-areas of knowledge,
evidencing distancing from the “Guidelines for Disciplines of the Pedagogical Preparation Stage” proposed in 2012 by the Office of the Graduate Studies at USP.

These Guidelines emphasize that the postgraduate should have access to the knowledge of the multiple dimensions of teaching and the specific knowledge of their area. In this way, they list a series of themes: conceptions of science and modes of production of knowledge; Historicity of the university and its influence on the different modes of curricular organization, teaching performance, class organization and evaluation of learning; Role of policy contexts and norms, management and financing of education; Influence of the LDB and curricular guidelines of each field of training in the organization of the curriculum; Political Educational Project; Organization of the course plan, which involves the definition of the objectives, contents, teaching methodologies and forms of evaluation of learning; Modes of class organization favoring innovation in the teaching-learning process, student autonomy and meaningful learning.

Another factor refers to the stricto sensu graduate courses conception because the research, being recognized as a founding requirement of the university profession, regulates the time and dedication of the teachers who work in it, affecting directly the teaching, first function of the university. Priority, shifted to research, strongly affects the design and development of teaching and learning curricula and practices, so each teacher is prepared to more closely address topics related only to their research, that is, restricted to specific knowledge. As a consequence, university teaching should be eminently linked to teaching and research, from the perspective of a professional, according to Contreras (2002) as a 'critical intellectual, transforming and autonomous'. The pedagogical training of the teacher of higher education is not only constructed with teaching strategies, but includes dimensions in the scope of pedagogical theories, educational policies and curriculum.

6. CONCLUSIONS.

It can be affirmed that the teaching knowledge embodied in the dimensions studied enables the teacher training for higher education, even considering the graduate space whose emphasis is located in the research. Therefore, the PAE Program is one of the instruments for teacher training and for the improvement of undergraduate education, since the content of teaching is worked on the Pedagogical Preparation Stage, even with its instrumentality limits.

Because it is a privileged space for teacher training for postgraduate students, the PAE involves the following aspects: established - legislations, norms,
curricula, disciplines, academic and institutional culture - possibilities for building university teaching that articulates teaching and research, in constant process Evaluation. The analysis of this process presupposes the need to increase the production and socialization of knowledge in the area of the PAE Program (theses, dissertations, articles); Valorization of the PAE postgraduate in the number of scholarships and the specialization of the teaching internship; Dissemination and communication of the actions of the PAE in the institutional space of the Office of the Graduate Studies and Teaching Units of USP and integration, through events, meetings and others with the participation of coordinating teams, teacher trainers, supervisors of teaching internship, post Graduates for the improvement of said Program.

ACKNOWLEDGEMENTS
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REFERENCES


PART III.
ENGAGING LEARNING ENVIRONMENTS FOR SUSTAINABILITY OF LEARNING AND TEACHING PRACTICES
Inclusive classroom: Teacher–student relationships

Outi Kyrö-Ämmälä¹, Suvi Lakkala², and Tuija Turunen³

¹University of Lapland
outi.kyro-ammala@ulapland.fi
²University of Lapland
suvi.lakkala@ulapland.fi
³University of Lapland
tuija.turunen@ulapland.fi

ABSTRACT
This article reports the findings of a Finnish socio-psychological research project aiming to promote equality among students with diverse socio-psychological, cognitive or social needs (Erasmus+ project Inclusive Education: Socio-psychological, Educational and Social Aspects, SPESA). It describes teacher-student relationships in an inclusive classroom. It aims to identify the main elements of inclusive practices, and how they are influenced by interpersonal interactions. The study employed an ethnographic approach: the researchers visited two primary school classrooms, where they observed lessons and interviewed students, parents and teachers. Teachers also kept pedagogical journals to record their reflections. The findings indicate that the relationship between teachers and students is the cornerstone of inclusive education. The teachers displayed respect for individuality through encouragement, social engagement, sensitivity and approachability. They also emphasised the sense of community by organising social activities, enhancing social skills, promoting ethical dialogues appreciating diversity, and empowering their students. These findings exemplify that to be successful, inclusive pedagogy does not necessarily require large investments in the student/teacher ratio, study materials, equipment, and other resources. Rather, the key factor is that teachers are willing to support their students based on individual needs, and promote a sense of belonging to the school community.

KEYWORDS: Inclusive education, Classroom relationships, Students’ diversity, Students’ school welfare, Ethnography.

1. INTRODUCTION
Prevention of learning failure and education efficiency is a key concern for education experts, politicians and government workers around the world. The effectiveness of a country’s education system is fundamental to its future success (OECD, 2016). This article reports the findings of the Erasmus+ project Inclusive Education: Socio-psychological, Educational and Social Aspects (SPESA) running between 2014–2017. The project aims to promote equity among students with diverse needs in four European countries: Austria,
Finland, Lithuania and Poland. The focus is on part of the Finnish research, looking at the teacher-student relationships in two primary school classes. It aims to highlight the main elements of the teacher-student relationship that enhance inclusive practices in the classroom.

Inclusive education creates the possibility for participation in instructional activities, social acceptance, and a sense of agency and belonging to the class community (Furrer, Skinner, & Pitzer, 2014; Lakkala & Määttä, 2011). Physical presence in a classroom does not necessarily result in student engagement, thus, the core competencies of inclusive teachers lie in their professional and social skills. These positively influence school culture, learning processes, academic outcomes and good relationships in the classroom (Buyse, Verschueren, Doumen, van Damme, & Maes, 2008; La Russo, Romer, & Selman, 2008).

A recent study by Kiuru et al. (2015) illuminated the potential of an inclusive teacher to increase the students' mutual acceptance of each other and their learning outcomes. Previous studies (Buyse et al., 2008; Hattie, 2009) also indicate that the social climate of the classroom influences the students’ learning process. Thus, there is strong evidence that the teacher-student relationship is a key factor to successful inclusive practices.

2. THEORETICAL FRAMEWORK

Inclusion aims to guarantee access to the local school for all children, regardless of their individual characteristics, strengths and weaknesses. The ontological basis of inclusion is the assumption that disability is produced socially and is dependent on the reactions of the society. This social model of disabilities assumes that the deficiency is within the society that does not account for the diversity of its members (Booth & Ainscow, 2002). Inclusive pedagogy emphasises the student’s social welfare and participation, increasing the potential for successful learning experiences, stronger relationships, community engagement, and future skill development (Ainscow, 2007; Peters, 2007).

The Framework of Participation (Black-Hawkins, Florian & Rouse, 2007) shaped the investigation of the observed teachers. The framework poses three questions on classroom participation: Who participates? Which classroom practices promote participation or reinforce barriers? Why do these practices promote or hinder participation? These questions reveal four key factors of participation: access to the group and curriculum, collaboration in the class, achievement from individual support, and recognising and accepting diversity (Black-Hawkins, 2014).
Related to the concept of self-determination, the framework highlights three student needs: the feeling of competence, achieved through opportunities to study at an appropriate level; a sense of relatedness, meaning students feel that they are accepted and respected in their class community; and autonomy, that the students feel they have control over their own learning and a choice in their activities (Furrer, Skinner, & Pitzer, 2014). These components provide a framework for studying the quality of classroom relationships.

3. METHODOLOGY.
This study applied an ethnographic approach, focusing on inclusive practices in two primary school classes. Typical to this approach, data were gathered by observing lessons and interviewing students, parents and teachers. Teachers also kept pedagogical journals to record their reflections on the main elements of inclusive practices. The research was conducted over six months during the 2015 autumn term. Consent was provided by teachers, students, and their parents.

Class A was a Year Two class with twenty students, ten boys and ten girls. Eight students needed support for difficulties with learning, attention, social skills, and other factors affecting well-being. Class B was a Year Four class with 24 students, eleven boys and thirteen girls. Thirteen students needed support for similar issues.

Sixteen students were interviewed for the study, eight from each class, half of whom received support. The interviewed students were coded with numbers 1–16 (interviews) and random letters (teachers’ journals). The teachers (coded as T1 and T2) were also interviewed. The data also consisted of classroom observations for three full days (including breaks and lunchtime), completed by two authors of this paper. The researchers focused on instructions supporting student diversity and promotion of student participation and well-being.

The data were analysed using thematic analysis (Mayring, 2008) following four stages: definition of categories (quotation); description of examples in each category (paraphrase); deductive analysis, producing text with references to the categories; and inductive analysis, moving from text to theory (concept).

By using different types of data (data triangulation) and co-analyses (researcher triangulation), result reliability was strengthened.

4. RESULTS
This study viewed the student group as a social community. The teachers consciously built social cohesion and communality, but also acknowledged the students as individuals. The findings are shared in two parts: the factors that support each student’s individuality and those that supported classroom communality.
4.1. Individuality
The teachers gave positive feedback and varied the timing and methods of praise (vocal, facial expression or physical touch) to support their students. Assessment, and therefore praise, was continuous throughout the lesson, so the students could be encouraged while they were studying.

I’m pleased that every student learned, and I could give personal feedback to every student, as I asked the students to show the exercises to me after completing them. All students were also given homework at their own level (Ped. journal, T1, 2015).

By encouraging and praising the students who worked well, while ignoring negative behaviour, the teachers modelled positive behaviour for the other students. (Observation, Class A).
Encouragement was also linked to teachers’ sensitivity: it is not always clear when students need encouragement. Knowing that all behaviour has a reason, the teachers looked behind the students’ bad behaviour, and encouraged the students appropriately.

CHALLENGES OF DAYS/awkward situations and solutions:
A furious reaction because a student had to raise his hand for so long a time (maybe the real reason was the upcoming blood sampling). I gave him attention, listened to him, nursed and encouraged him (Ped. journal, T1, 2015).

The teachers were sensitive to noticing students’ behaviour, they knew the students well and adjusted their own behaviour to the students’ moods.

Teacher: I try to be equal whoever the student is. Whatever the circumstances are. Of course, you’ll have to give a little more sympathy or support if someone has a demanding situation. But the rules are the same for everyone. It doesn’t matter if you are an immigrant or if you have a diagnosis, except then you have to make some adaptations. It is not so simple. You have to consider it on a personal level. For some, you need to accept something and for others not (Interview, T2).

The teachers were also sensitive when they created functional learning groups to ensure the members worked together and gave peer support.
A very relevant part of inclusive classroom is social engagement. It’s important to the students to feel that they are appreciated by the teacher and their peers. The inclusive teachers take care of students; they are loyal and interested in their students and show affection even during students’ ‘bad days’.

Students wait until they are allowed to tell their personal news… I’m always happy when I see a silent student raising a hand to share news meaningful to him or her (Ped. journal, T2, 2015).
Finally, the teachers were approachable and students talked easily with them, knowing that the teacher would listen.

They can be very delicate things, something bad may have happened, someone getting sick, or it may relate to their pets. It may concern their relationships with classmates. They also may be happy things. (Ped. journal, T2, 2015).

4.2. Communality
The teachers organised social activities and created opportunities for students spend time together, study together, and take care of each other. Teachers and students shared personal news, discussed crucial issues, left the classroom regularly, and occasionally celebrated at school.

We had a birthday party for Student Z. It all made him very happy. He gave birthday invitations to every classmate, including to Student Y, who had told me previously that he is not invited to parties. Great! (Ped. journal, T2, 2015).

They facilitated positive relationships between students by organising various learning environments and structures. The teachers created diverse groups so students experienced working with different people.

Previously, we had lunch in named groups, aiming to mix up the groups of friends and guide girls and boys to eat together. I’m happy to notice that now the students have lunch in various groups. (Ped. journal, T2, 2015).

School buddies were used to develop students’ social skills. In buddy lessons, a multi-age pair from different classes study together, sharing the responsibility and learning from each other. In addition, the buddy classes made excursions together.

Today, I was also pleased that the [older] school buddies brought true joy of learning and pleasure of working together to our class… They motivate my students, and they can also teach the young ones. Both the 2nd the 6th graders are doing just fine together. I think they both want to behave harmoniously (Ped. journal, T1, 2015).

Empathy is a key social skill for students to develop and the teachers facilitated this growth through discussion.

Student Q tried to ‘strangle himself’ and threw his eraser during the lesson. I turned off the histrionics by ignoring him. Afterwards we discussed it together and I appealed to his empathy and encouraged him to pity me. WORKS!

‘Do you want to make your teacher sad? Do you want your teacher to go blind?’ (Ped. journal, T1, 2015).
Interactive ethical discussions were also used to teach empathy and resolve conflict. Teachers used conflict situations to promote discussion by analysing and evaluating various solutions together, either with the whole class, or privately between the teacher and the student.

Interviewer: And what about when students are arguing, or students with quick tempers?
Teacher: Then a student may speak badly to another . . . like ‘you are a slow runner’, but then we talk them through and apologise, and things go on well.
Interviewer: Do you tend to discuss this with the whole class?
Teacher: Sometimes yes, I ask, ‘Please help us to solve this situation’ so every student can hear it. And then the bickering pair gets support, and the others get a solution model for the future.
Interviewer: You can learn from the mistakes also.
Teacher: Yes. [This way] the mistakes don’t hurt or depress them (Interview T1).

Teachers appreciated students’ individual characteristics, skills, strengths and weaknesses. They also discuss the student diversity to make it more visible. They worked with students on personal goals and different learning styles and multiple intelligences were encouraged.

Teacher: We play together, and through games we can see individual characteristics, strengths and weaknesses, and in that way, students can also find the diversity in themselves, and despite that, they can still work together.
Interviewer: So you think you can discuss diversity even with the first graders?
Teacher: Yes, and I think that teachers should do it. It is not an issue that can’t be discussed with [young] students. The diversity is just natural… Maybe at first they asked why he or she is allowed to do something [differently], but now they understand (Interview, T1).

Students were engaged in the classroom community. The teachers empowered children by giving them opportunities to make decisions about their own studies and issues in the class. At the same time, students’ responsibilities increased. The teachers used responsibility tasks to encourage students to take care of common problems without adult intervention.

5. IMPLICATIONS
School is an important social context for students. Most of the students interviewed saw school primarily as a social community where they could play, meet friends and have fun. The social model of disabilities highlights that the environment and community influence the individual’s opportunity to participate in society (Peters, 2007). This research indicates that inclusive
education requires collaboration between children and adults to develop relationships on both individual and communal levels (c.f. Booth and Ainscow, 2002). The teachers acknowledged student individuality through encouragement, social engagement, sensitivity and approachability. They also emphasised the sense of community by organising social activities, enhancing social skills, promoting dialogue on ethical matters in their classrooms, appreciating diversity and empowering their students.

6. CONCLUSIONS
The conclusions are reflected in the Framework of Participation (Black-Hawkins, Florian & Rouse, 2007; Black-Hawkins, 2014). In both observed classes, the teachers expended considerable effort in strengthening the class community and in recognising students’ individuality. As in the framework, the first key factor—participation—was to engage students in their own learning process and social community. Consistent with Cooper and McIntyre’s (1996) findings, this study also found that a supportive social context helped students feel emotionally secure and to better engage with their academic studies.

We identified the second key factor of participation—class collaboration—when the teachers organized several opportunities for students to spend time and study together. Regarding the third key factor, the teachers enhanced students’ achievement through individual support, encouraging and praising every student’s efforts and progress, not only their results. The fourth key factor—recognising and accepting diversity—was achieved when the teachers sensitively discussed and appreciated the students’ individual spectrum in the class.

Our results uphold the principles of Universal Design for Learning (Meyer, Rose & Gordon, 2014), which emphasise multiple teaching methods and multiple means of student action, expression and engagement. Inclusive education is implemented by adapting the curriculum according to diverse learners (Lakkala & Määttä, 2011; Spratt & Florian, 2015). In the observed classes, the teachers constructed flexible learning environments through continuous observation and multiple assessment (Tomlinson & Moon, 2013). The research findings indicate that inclusive education is not established only on the basis of legal norms and policies and that the key factor has to do with teachers who are able to support their students’ individual needs and promote a sense of belonging to the school community.

ACKNOWLEDGEMENTS
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Advantages of extracurricular activities for rural environment students

Margarita Pino Juste¹, and Lucía Pumares Lavandeira²

¹Universidade de Vigo
mpino@uvigo.es
²Universidade de Vigo
lpumares@uvigo.es

ABSTRACT
Extracurricular activities refer to the activities that students undertake outside the core school curriculum. They are characterized by a structure, an organization and adult supervision. The extracurricular activities are expected to enrich students’ experiences, develop their abilities, help them to face different situations, etc. Therefore, many research studies focus on identifying the benefits derived from students’ participation in these activities. The present study is aimed at determining, through an interpretative approach, the advantages of extracurricular activities and their relationship with academic achievement for rural environment students. The sample consists of 321 students who reside in rural areas and are enrolled in the 5th and 6th year of Primary Education. The results of the study show that the majority of students (92.8%) attend extracurricular activities, the most common being academic activities and sports (26.8%). In addition, both parents and children find participation in extracurricular activities useful (98% and 90.9%, respectively) and report that, for example, these activities promote self-management, self-responsibility, autonomy, organizational skills (15.6%), as well as social skills (14.1%). Finally, attendance at extracurricular activities is related to a higher academic performance in the field of foreign language learning (p=.040).

KEYWORDS: extracurricular activities, Primary Education, leisure time activities, positive youth development.

1. INTRODUCTION
Extracurricular activities are understood as activities undertaken by students aside from what is required to get a graduate diploma, since they are done outside of school hours and curriculum, and fulfill the purpose of supporting, complementing and enhancing both student achievement and personal development (leisure, health, values, etc.). These may include hobbies, sports, cultural activities, etc. In Spain, they are organized almost exclusively by Parents’ Associations (AMPAS) or by parents themselves (Moriana et al., 2006; Thompson, Clark, Walker & Whyatt, 2013; Al-Ansari et al., 2016).
Thus, extracurricular activities are characterized by a structure, an organization and adult supervision. They are also expected to enrich students’ experiences, develop their skills, help them cope with different situations, etc. For this reason, many research studies focus on identifying the benefits derived from students’ participation in these activities (Metsäpelto & Pulkkinen, 2012; Simoncini & Caltabiono, 2012).

2. THEORETICAL FRAMEWORK

Participation in (structured or supervised) positive extracurricular activities, both within and outside the school context, has been identified as an important factor in promoting positive youth development (Peck, Roese, Zarrett, & Eccles, 2008; Badura, Geckova, Sigmundova, van Dijk & Reijneveld, 2015). Recent research has shown that extracurricular activities provide children with contexts for their emotional, social and civic development (Mahoney, Harris & Eccles, 2006; Metsäpelto, Pulkkinen & Tolvanen, 2010). The expected benefits of participating in extracurricular activities include the possibility of building supportive relationships with peers and adults; the opportunity to develop psychological, emotional and social skills that facilitate well-being; and the possibility of spending hours after school in a physically and psychologically safe environment. The evidence is mostly based on samples and studies conducted on US adolescents, limiting the generalization of results to other educational systems and cultures (Eccles, Barber, Stone & Hunt, 2003; Metsäpelto et al., 2010).

Previous studies have highlighted the important role that such participation may play in the educational process of young people at high risk of social exclusion. In addition, given the significant personal and social costs of school failure, correcting the barriers that facilitate educational success among vulnerable adolescents remains a critical social problem and the focus of government intervention worldwide (UNESCO, 2003; Peck et al., 2008). Therefore, although a high number of research studies have examined the benefits of students’ participation in extracurricular activities, little has been done to determine the potential protective effect of such activities for young people at risk of engaging in disruptive behavior (Burton & Marshall, 2005).

Gardner, Roth, & Brooks-Gunn (2009) have conducted a study aimed at examining the relationship between participation in organized sports and juvenile delinquency. To this end, they compared the youngsters who participated in sports activities to those who only participated in non-sports activities, and to those who did not perform any organized activity. The findings have revealed that the likelihood of non-violent delinquency was higher among children participating in sports than those who attended only
non-sports activities, but lower compared to children who did not perform any organized activities.

However, the relationship between extracurricular activities and young people who were vulnerable or at risk of social exclusion has not been the only one studied. An intervention, called Integrated School Day, has been carried out in Finland with the objective of examining the role of this extracurricular program in the socio-emotional development of children during their first school years.

The program, which lasted 3 years, has involved the restructuring of the school day by adding extracurricular activities according to the children’s wishes. It has been shown that the students participating in the intervention had lower levels of internalization of behavioral problems, social anxiety and depressive symptoms than the control group. The results have also shown that the larger the number of years participating in the program (however, not the number of different activities or regularity of participation) was related to a low internalization of behavior problems, reducing social anxiety (Metsäpelto et al., 2010).

Another study on children with ADHD has focused on finding out whether sports improved the symptoms of attention, social competence and cognitive functions among these students. This study was designed as a six-week prospective trial, including 12 sessions of educational/sport therapy. The research has concluded that physical activity as a therapy may increase social competence in children with ADHD, as proven by improvements in cognitive functions, whereas educational therapy does not imply significant changes (Kang, Choi, Kang & Han, 2011).

The current study is aimed at determining, through an interpretative approach, the advantages of the extracurricular activities for parents and their relationship with academic performance in rural environment students.

3. METHODOLOGY

An interpretive, descriptive and inferential cross-sectional study was carried out using a non-probabilistic sample of voluntary subjects.

This study was conducted on students enrolled in the last two grades of Primary Education in the rural areas of southern Galicia. The number of students in each grade is very balanced (160 are enrolled in the 5th and 161 in the 6th), 55.5% being girls and the average age being 10.5 years old.

The academic performance was measured using the total performance understood as the grade average obtained in different subjects: Mathematics, Spanish Language and Literature, Galician Language and Literature, Arts, Foreign Language, Sciences and Physical Education.
Regarding attendance to extracurricular activities, the variables measured relating to them were collected by designing and administering an *ad hoc*, anonymous, and voluntary questionnaire. This questionnaire consists of two parts: one answered by students and the other by parents, with a code being assigned to each document.

The data analysis was conducted using the SPSS (V.20.0.) statistical package. First, a descriptive analysis of the data was performed, and next the Kolmogorov-Smirnov test was used in order to rigorously decide whether the sample comes from a normal distribution or not. After that, independence tests were performed between categorical variables (Chi-square test) and t-tests to compare independent means with a significance level of \( p < .05 \). The effect size was also calculated (Cohen’s d), whose interpretation (Cohen, 1998) is as follows: an effect size of 0.2 to 0.3 is considered small; an effect size of approximately 0.5 is considered medium; and 0.8 or higher is considered large (taking into account that d may be higher than 1) (Ledesma, Macbeth & Cortada de Kohan, 2008).

4. RESULTS

92.8% of the students attend extracurricular activities, compared to 7.2% of the students, who do not perform any kind of extracurricular activities.

With regard to the type of extracurricular activities, academic and sports activities have the highest percentage of participation (26.8%), whereas academic activities only have the lowest percentage (6.4%). In addition, 19.5% perform only sports activities, 14.4% artistic and sports activities, 14.1% the three types of activities, 10.4% only artistic activities, and the remaining 8.4% academic and artistic activities. Only 39.3% of the children attend federated sports activities.

Parents answered in the affirmative (98%) to the question of whether they considered useful the extracurricular activities in which they had enrolled their children. Similarly, 90.9% of the children reported finding extracurricular activities useful.

The families pointed out that the reasons for this usefulness were the promotion of self-management, responsibility, autonomy and organizational skills (15.6%); the promotion of social skills (14.1%); its positive impact on the academic field (8.6%); moreover, there are also parents who mentioned a combination of these reasons and other factors in varying percentages.

8.6% of the parents observed that the usefulness of extracurricular activities was due to all the variables considered (promotion of social skills and emotional intelligence, promotion of self-management, responsibility, autonomy and organizational skills; development of creativity, and a positive
impact on the academic field), whereas 8.2% stated that there were also other reasons, mainly related to health (medical prescription, overweight, etc.).

Most students attending extracurricular activities (105 participants) also performed all the so-called leisure activities (study/reading, outdoor activities, television/video games). There was also a high rate of students (50 participants) who studied or read, and performed outdoor activities in their free time. Thus, it is particularly worth highlighting the case of students who attended academic and sports extracurricular activities or only sports activities, since most of them performed all kinds of activities in their free time (29 and 23 participants, respectively).

Therefore, to determine if there are differences between the attendance or non-attendance at extracurricular activities, and the use of free time by students, $x^2$ was calculated. Given that the level of significance is .010, the null hypothesis of independence is rejected and our conclusion is that there is a relationship between attendance at extracurricular activities and the use of free time.

<table>
<thead>
<tr>
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<th>Value</th>
<th>gl</th>
<th>Asymptotic significance (bilateral)</th>
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<tr>
<td>Pearson’s Chi-square</td>
<td>20.212</td>
<td>8</td>
<td>.010</td>
</tr>
<tr>
<td>Likelihood ratio test</td>
<td>14.815</td>
<td>8</td>
<td>.063</td>
</tr>
<tr>
<td>Linear-by-linear association test</td>
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<td>.973</td>
</tr>
<tr>
<td>No. of valid cases</td>
<td>321</td>
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</table>

Table 1: Chi-square between free time and registration

Since there is a relationship between attendance at extracurricular activities and the use of leisure time, our decision was to determine if there were differences between the type of extracurricular activities that the students attended and their use of free time. The Chi-square significance level was .014. Therefore, it was concluded that there was a relationship between the type of extracurricular activities and the use of free time by students.

<table>
<thead>
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<th>Value</th>
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<th>Asymptotic significance (bilateral)</th>
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<td>.002</td>
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<td>Linear-by-linear association test</td>
<td>1.249</td>
<td>1</td>
<td>.264</td>
</tr>
<tr>
<td>No. of valid cases</td>
<td>298</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Chi-square between free time and type of extracurricular activities
Finally, to determine the relationship between attendance at extracurricular activities and academic performance, the Student’s t-test was calculated. The results show that there were significant differences only between the average grades in the case of the Foreign Language (p = .040). Specifically, the average grade in this subject was higher for those attending extracurricular activities (X=7.86) than for those who did not (X=7.04), with the mean effect size being (d = 0.472587).

<table>
<thead>
<tr>
<th>Factor</th>
<th>Registration</th>
<th>Mean</th>
<th>F</th>
<th>Sig./Cohen’s d</th>
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<tbody>
<tr>
<td>Total performance</td>
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<td>7.6951</td>
<td>1.524</td>
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<td></td>
<td>No</td>
<td>7.1863</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td>Yes</td>
<td>7.50</td>
<td>.791</td>
<td>.193</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>7.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish Language and Literature</td>
<td>Yes</td>
<td>7.48</td>
<td>3.467</td>
<td>.099</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>6.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Galician Language and Literature</td>
<td>Yes</td>
<td>7.28</td>
<td>4.045</td>
<td>.124</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>6.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts</td>
<td>Yes</td>
<td>7.99</td>
<td>2.639</td>
<td>.513</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>7.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign Language</td>
<td>Yes</td>
<td>7.86</td>
<td>1.107</td>
<td>.040/0.472587</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>7.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Yes</td>
<td>7.62</td>
<td>.518</td>
<td>.142</td>
</tr>
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<td></td>
<td>No</td>
<td>7.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Education</td>
<td>Yes</td>
<td>8.15</td>
<td>.791</td>
<td>.196</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>7.74</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Student’s t-test between attendance at extracurricular activities and academic performance

5. IMPLICATIONS/DISCUSSION
The results of the study show that most students attend extracurricular activities, with the most common being academic and sports activities. In addition, both parents and students found participation in extracurricular activities useful and noted that they promoted self-management, responsibility, autonomy and organizational skills, as well as social skills.
Our analysis also showed that there was a relationship between attendance at extracurricular activities and the use of free time, as well as between the type of extracurricular activities and use of free time by students. The study conducted by Hermoso Vega (2009) found a relationship between the attendance at
extracurricular activities and students’ satisfaction with the use of their free time. Finally, attendance at extracurricular activities is related to higher academic performance in the subject of Foreign Language. On the same line, Fredricks & Eccles (2005) stated that participation in extracurricular activities was positively associated with academic, psychosocial and behavioral performance, conclusions varying according to the activity and results. Moreover, Streb (2009) concluded in his research that there was a relationship between participation in extracurricular activities and academic performance of Secondary Education students.

6. CONCLUSIONS
In the light of the views expressed by both parents and students, it can be concluded that extracurricular activities have a benefit for rural students. Our analysis also shows that the way of using their free time is different for participants and non-participants in these activities, also depending on the type of activity being performed. On the other hand, the benefits of extracurricular activities are also proven by a higher academic performance in Foreign Language. However, it would be interesting, in future research work, to compare these findings with other populations, contexts, cultures and ages. In addition, it would be of paramount importance to determine the most beneficial extracurricular activities based on the students’ characteristics (age, interests, skills, etc.), and on the needs and resources of the school and community environment.

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ADVANTAGES OF EXTRACURRICULAR ACTIVITIES FOR RURAL ENVIRONMENT STUDENTS


Respondents to, or agents of, change? Teaching ‘soft skills’ in a school-university partnership project

Michelle Ludecke

Monash University
michelle.ludecke@monash.edu

ABSTRACT
This paper is the first interim report on a year-long case study about my partnership with a group of school teachers, and their experiences of designing and implementing their College Experience (CEX) program. The CEX program has been designed for Level 9 students, and both the program and the mandated curriculum which it is guided by were new in 2017. The CEX program centres on ‘soft skills’—Thinking, Ethical, Intercultural, and Personal and Social Capabilities—in practice. I use the term ‘soft skills’ in place of more static terms such as 21st Century Skills to draw attention to the fluid and liminal nature of these skills, as they shift in response to contextual change. The case study is framed within the concept of liminality—a time and place of transformation, where the separation from old ideas creates a phase of exploration before the aggregation of new ideas takes place. I consider whether practitioners position themselves as respondents to, rather than agents of, change, within this liminal space.

This particular paper focusses on the initial phase of the case study, which was my own curriculum work for the project, through a reflective journal. Emergent themes include the excitement of newness countered by lack of resources, change fatigue, and developing autonomy within a top-down approach to curriculum change.

KEYWORDS: soft skills, capabilities, curriculum reform, liminality, agency.

1. INTRODUCTION
Prior to embarking on my career as an academic I was a secondary teacher. I came to realise that curriculum reform was commonplace, and addressing curriculum reform was expected to occur as central to teachers’ work. Such expectations resulted in myself and my colleagues working within a liminal space—a time and place of transformation, where the separation from old ideas creates a phase of exploration before the aggregation of new ideas takes place. I found this space, created by top-down reform, to be full of possibilities, as well as being problematic. Possibilities included taking part in active renewal of old ideas. However, liminality can be problematic when teachers position themselves as respondents to, rather than agents of, change
Like many Western countries, in Victoria, Australia the 1990s promised to be a decade of national reconstruction and curriculum frameworks, as the systems reclaimed the curriculum control which they had lost to the schools in the seventies and early eighties (Barcan, 2003). Since the introduction of the Curriculum and Standards Framework in 1993, when I entered the teaching profession there have been four additional periods of curriculum reform in Victoria, most recently to an adaptation of the Australian Curriculum in 2017 in the Victorian Curriculum (VC).

When posited as ‘reform’ or ‘change’ the implications are that teachers are falling behind or failing to address the needs of learners, and that universities are failing to prepare teachers adequately. My experiences in schools and universities, and my own Doctoral research (Ludecke, 2013) revealed that many pre-service teachers since the 1990s in Victoria experience their first curriculum reform or change either during their teacher education or in their graduate years as an in-service teacher. More recently, and internationally, curriculum reform in the 21st century emerges in response to many factors, including but not limited to: globalization; reflexive modernization (individualism); unpredictability of the workforce; transition from industrialism to post-industrialism (a knowledge-driven economy); anxiety over the country’s economic competitiveness locally and globally; and employers lamenting the inadequate vocational preparation of the youth of today, intensified by the concern of parents and, to some extent academics, over the nature and quality of education.

The most recent change in the VC is the addition of four capabilities to the existing learning areas. The capabilities represent sets of knowledge and skills that are developed and applied across the curriculum. Looking internationally the capabilities have similarities to P21’s Framework for 21st Century Learning in the USA (http://www.p21.org/our-work/p21-framework); British Columbia’s Core Competencies (https://curriculum.gov.bc.ca/competencies); 21st Century Competencies in Singapore (https://www.moe.gov.sg/education/education-system/21st-century-competencies); and transversal competences in the Finnish Basic Education curriculum (http://oph.fi/english/curricula_and_qualifications/basic_education/curricula_2014). Voogt and Roblin (2012) provide a comprehensive comparative analysis of international frameworks for 21st century competences. Commonplace here is constant reform in response to changing times. What this means for teachers in schools is a continual adaptation to new ideas that are future focused yet unpredictable. Compounding the problem, the
capabilities were to be implemented in 2017, however curriculum support from the Victorian Curriculum and Assessment Authority was not fully delivered in relation to support material for teachers, and is still not fully developed at the time of writing.

The term ‘soft skills’ stems from military business models, and is used today to describe skills different to ‘hard’ skills that are quantifiable and measurable (Mitchell, Pritchett, & Skinner, 2013). The use of the term ‘soft’ is problematic in that it gives the impression that they are weak; however, these skills, traits, attitudes, attributes and intelligences are deemed by employers to be the foundation on which other skills can be built. I am using the term ‘soft skills’ to draw attention to the fluid and liminal nature of these skills, demonstrating that they shift in response to the current context, and as such are more problematic to include in curriculum that asks such skills to be assessed and reported on. Soft skills, under various aliases, include creativity, critical thinking and problem solving, collaborative skills, information technology skills, and new forms of literacy, and social, cultural, and metacognitive awareness. Soft skills are also known in educational contexts as employability skills, or work skills. They are developed through inquiry-based approaches, serving to enhance students’ potential to transfer skills to a variety of areas, and to be able to problem solve in a variety of situations. In an integrated curriculum, the aim is to build solid connections between the development of ‘soft skills’ such as the VC capabilities and the teaching of content, because the capabilities may be helpful, even essential, to students unlocking the content.

Level 9 programs are popular in Victorian schools as the point of beginning to address soft skills. In theory such programs are individually designed by schools to engage students in learning, and prepare them for post compulsory options. In practice aligning these programs with new curriculum, such as aligning CEX with the VC capabilities, present a number of opportunities and challenges for teachers working in the liminal space of curriculum reform, that are transferable across contexts.

2:THEORETICAL FRAMEWORK

In my previous research I have examined the liminal spaces teachers encounter and work within, in various transitional phases (Ludecke, 2013, 2016; Walker-Gibbs, Ludecke, & Kline, 2015). Similarly, in this work, the theoretical framework has its foundation in the concept of liminality (Turner, 1974, 1975, 1994, 2008) as a tool to make sense of the ‘passage’ between teachers’ responses to changes in their work lives and identities and the changing curriculum landscape. Liminality provides a way to situate the daily, micro
context of teaching life within that of the wider macro, curricular changes taking place.
Teachers are not mere puppets of macro globalisation, policy, and curriculum changes. They work within and amidst them, are shaped by them and, in turn, their own thoughts and actions reshape the school in which they work. This is where Turner’s understanding of liminality comes into play. Turner (2008) maintained that when individuals entered the liminal period, they shed previous roles but did not yet take on new ones. Thus, liminal individuals experience a type of paradox in which they let go of their previous roles and responsibilities but have not transitioned to the new state and its accompanying roles and responsibilities. This understanding of liminality helps explain the confusion and anxiety of teachers as they respond to macro level, top down changes. The individual negotiates the liminal period as well as an awareness of the changing macro contexts. Turner’s concept of liminality also assists to view this betwixt and between time as one of possibilities, of trying on different identities so that ‘yesterday’s liminal becomes today’s stabilized’ (Turner, 1974).
Having employed the concept of liminality in previous works I am aware that this concept (as do other concepts) has some limitations. These stem from the fact that Turner’s early work centred on the liminal in rites of passage, namely adolescence, in anthropological research. However, others have developed the concept of liminality further, for example: shifting landscapes (Clandinin, Downey, & Huber, 2009); betwixt and between (Pierce, 2007); and rites of passage (Berman, 1994). Zukin (1991) thought about the process of economic restructuring as liminality, and more recently Aronowitz et al. (2006) have employed the concept of liminality as a conceptual framework for explaining the macro intellectual and economic changes, and instances of global and resulting institutional restructuring taking place alongside inescapable social changes. Such appropriations of Turner’s earlier understandings of liminality demonstrate the strength of the concept in its ability to be applied to a range of phenomena. Therefore, when I use liminality I use it to explore the space created by change, and the shaping of identities and practices within the liminal space.

3. METHODOLOGY.
This case study (Stake, 1995, 2005) centres on one particular program; a bounded system of seven teachers’ and my own experiences over the period of one year—from preparation for, to the conclusion of, the school year. It is particularistic, descriptive, and heuristic (Merriam, 2009). Particularistic in that the case is important for what it reveals about the program itself, and for what it might represent through the situation of coping with curriculum reform, arising from everyday teaching practice.
My focus is the teachers’ experiences of curriculum reform, and the liminal spaces created by change. The purpose of the study is to examine how teachers manage curriculum change. I specifically ask whether teachers (myself included) working in liminal spaces created by change are respondents to, or agents of, change? In the process of separation, margin/limen, and aggregation, are teachers empowered by change? How does change play out in relation to their practice in terms of developing and delivering curriculum, engaging learners, and assessing learning? Such questions are posed with the view that this case is transferrable to other sites (Merriam, 2009; Stake, 1995), applicable to teachers working with ‘soft skills’, and planning, teaching, assessing and reflecting on these skills in educational contexts across the globe. The qualitative research strategy for the overall case study includes self-reflection, participant interviews, observation, and data validation—where participants engage in reflection and reflexivity. The semi-structured interviews allow participants to steer the conversation in such a way that the aspects which are salient to them become prominent in the discussion. My observation of teachers delivering the program provides an additional perspective. Data validation of de-identified individual data with the respective teachers themselves forms part of a reflexive process where individual teachers propose further action and report on their actions. Teachers will also report on a summative evaluation at the end of the program, as part of their preparation for future iterations.

In relation to this particular paper, the focus is on the initial phase of the case study: my own curriculum work for the project, through a reflective journal.

4. RESULTS.

In the latter part of 2016 I was presented with a problem – to develop a curriculum for a school’s new Level 9 program. A co-researcher asked me, as an ‘educational and curriculum guru’ (her words!) to help her out in her new role as head of the CEX Program. She and her teaching team had 2 school days of release from teaching in order to flesh out a year-long program, replacing the previous 2-week program. The new program to be launched 8 weeks later in February 2017 needed to align with the new VC general capabilities. My task was to look over the teachers’ ideas and match them to the capabilities, create learning intentions and success criteria for each week, and prepare assessment tasks and rubrics for each of the four units within the program. At that point in time here’s what I knew:

That’s right, absolutely nothing. Nothing about the school, the students, the new area of general capabilities in the state-wide curriculum to be implemented in the following year.
I reviewed what little information had been released regarding the new VC, and in particular the capabilities at Level 10, to which the Level 9 students would be ‘working towards’. It was during this stage, having the luxury of some down time in my university teaching schedule, that I realised how important time was in adapting to curriculum reform.

Journal Excerpt:

I’m in a liminal time here - a time of separation from previously held ideas; both a moment in time and a period of time. It is quite luxurious, and I can see it stretching out in front of me…but there’s an end point. A deadline. Here at the start it seems such a generous amount of time, and within the days available there are long blocks of hours where I can wallow in this new material, explore connections to previous ideas, and have the luxury of allowing new ideas to take their own shape… But the deadline looms, ever-present, and I don’t know if I will be ready by then to say that this liminal time is over, and that I’ve achieved ‘aggregation’.

Turner (1994) posits that states of transition include separation, margin (limen) and aggregation, and considers the idea that if liminality is regarded as a time and place of withdrawal from normal modes of social action, it potentially can be seen as a period of scrutiny for central values of the culture where it occurs—one where normal limits to thought, self-understanding, and behaviour are undone.

In this liminal space there is a combination of an excitement of newness countered by lack of resources. The units in the program sounded fantastic to me, and looked good on paper. Each of the four term-long units: Looking Around; Looking Beyond; Looking Out; and Looking Within, already incorporated soft skills that could readily be connected to the capabilities. For me this was a kind of backward mapping, and I was quite excited to embrace the new ideas by making some connections to what I already knew about soft skills. I reflected ‘I can’t understand why the teachers aren’t as excited as I am by this task, and have passed it to me to do. They know the students, so they would be able to see more possibilities and practicalities that I can…’ However, the initial excitement soon wore off and I found myself frustrated with the new curriculum, due to the lack of resources available. I wanted to be excited by all the possibilities that the concept of ‘new’ holds, and I wanted to be energised by my excitement. After four days working on the program I began to experience a frustration similar to what I understand the CEX teaching team also experienced. The lack of resources available for the capabilities in the form of support material, assessment material, and examples was made all the more frustrating when compared to the resources available for the other learning areas. I began to think that our Curriculum and Assessment Authority was struggling as much as we were.
Journal Excerpt:

I think there’s too much of a rush here to get this new curriculum out, before the end of the school year, in whatever format, so that teachers at least have some idea of the changes they will need to make. But this half-completed work makes me want to give up, to down tools until there are more concrete examples…and this makes me feel like I have no autonomy. I’m just waiting for more information to be spoon fed to me, and I’ll just do what everyone tells me to, for fear of trying something new and getting it wrong, or being told ‘that’s not what we had in mind’. I’m really worried now about what the teaching team will think of my work. Will they think I have no idea? Because I don’t! But I don’t what them to think that!

I didn’t know much about the CEX teaching team at this point in time. My knowledge was second hand, derived from the head of the program through our discussions and emails. Through this information, I formed in my mind an image of a teaching team that was experiencing end-of-year fatigue, and with it a form of change fatigue (Day & Gu, 2009; Mellegård & Pettersen, 2016). I imagined the teachers had reached a liminal space of neither excitement nor optimism about the new program and the new curriculum. I wanted to be their excitement and optimism, but I found myself increasingly doubting my ability to demonstrate any form of agency over my work for them. Agency is both a temporal and a relational phenomenon; it is something that occurs over time and is about the relations between actors and the environments in and through which they act (Biesta et al., 2017). In this liminal space, where agency is shaped by experiences, my past experiences of curriculum reform shaped me to respond to, rather than become an agent of, this change.

5. IMPLICATIONS.
How teachers manage curriculum change depends on a range of contextual factors. When change is in response to students’ prospective learning and development of soft skills in an increasingly unpredictable employment environment, teachers’ sense of agency can be challenged. Veteran teachers, who will have been recipients of generations of changes in educational policies and societal values over the past two or three decades, are constantly challenged by the need to adjust (Day & Gu, 2009). What may be communicated as extended freedom by policy makers has been shown to be perceived as extended demands (Mellegård & Pettersen, 2016). Unless teachers have the time to embrace the liminal space that change creates their commitment to change will result in a temporary response to top-down approaches to curriculum change. The message to policy/curriculum makers is to provide sufficiently clear examples of the evolution of new ideas, coupled
with well-developed support material and examples at the time of expected implementation. School leaders need to play a part in allowing teachers sufficient time to embrace the possibilities afforded in a liminal space in order to increase teachers’ sense of agency. Noack et al. (2013) provide recommendations for a four-phase nested model of change implementation for schools, where teachers are afforded the opportunity to explore their personal approaches to change as well as their implicit assumptions about learning and learners and the reform agenda.

6. CONCLUSIONS
This is the first report on this particular case. Future research and analysis will certainly continue to centre on teachers’ agency, as they move through the liminal space. As the program progresses and the term-long units are repeated and refined it will be interesting to track the development or decline of these themes, and the emergence of new ones. The liminal space of separating from an old curriculum and adapting to a new one, affords us the opportunity to examine our own professional identities and sense of agency in relation to change. Teachers’ identity can be shaped by school reform and political contexts (Cohen, 2008; Lasky, 2005). Soft skills, however we term them, are recognised as valuable in a rapidly changing world. Teachers need to be increasingly aware of the teachable moments around soft skills in their learning environments—in themselves and their students—that assist to develop autonomy and agency. Like their students, teachers need a clear understanding, sound examples, a strong rationale, and time to aggregate new information, as they move through the liminal space (Wendling, 2008). Well-developed soft skills provide an individual with the foundation for a strong sense of agency. The irony of teachers grappling with new curriculum in order to teach students the skills required to develop resilience, problem solving and autonomy is not lost here.

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Respondents to, or agents of, change? Teaching ‘soft skills’ in a school-university partnership project


Playing with LEGO-bricks as an innovative pedagogical tool at pre-university and university levels for teaching urbanism

Inmaculada Mohino¹, Eloy Solís², and José María Coronado³

¹Department of Human Geography (Universidad Complutense de Madrid)
mamobino@ucm.es

²Department of Civil Engineering (School of Architecture – University of Castilla-La Mancha)
Eloy.solis@uclm.es

³Department of Civil Engineering (School of Civil Engineering – University of Castilla-La Mancha)
Josemaria.coronado@uclm.es

ABSTRACT
The inherent complexity and the deep transformations underwent by contemporary cities and territories require a new urban culture. This requires a new strategic alliance between educational system, pedagogy (teaching and learning methods) and urban practice. In this context, we suggest the use of LEGO-bricks as a powerful tool: (1) to make easier the understanding and comprehension of the physical/spatial characteristics of the built environment and its planning and design; (2) to introduce and adapt, implemented together with a problem-based learning methodology, the teaching of urbanism not only at universities (as it has been traditionally done) but also at other pre-university education levels (primary or secondary education). By introducing this innovative pedagogical methodology by using LEGO-bricks in two cases studies –workshops at secondary (High-School) and tertiary (School of Architecture) education levels, we conclude that LEGO-bricks is an appropriate pedagogical tool at (pre)university levels for introducing urbanism and changing the perspective of educational system but also for facilitating the understanding of urban issues at different education levels.

KEYWORDS: LEGO-Brick, urbanism, teaching and learning process, education planning.

1. INTRODUCTION
Increasingly more people are living and working in cities. Cities are the places from which to face the contemporary largest challenges of humanity (climate changing, social inequalities, access to housing, mobility, etc) (EU, 2011). Therefore, it is necessary for our society to develop new strategies for redefining and creating these places where people live and work, the mobility systems that connect these places, to meet the challenges of the future.
Urbanism (urban planning and design) has a crucial role in shaping cities. Consequently, the teaching and practice of urbanism has become a major issue in the political, economic, social, spatial and education agendas. In this context, two intertwined issues are arising. The first issue is the reformulation of the teaching and learning methods, strategies, tools and measurements in the field of urbanism (Salama, 2009; Korobar and Siljanoska, 2016). The other issue is the introduction of urbanism and architecture in pre-university levels (UIA Architecture & Children Work Programme, 2008; Košćec et al, 2013; Raedó, 2013). Within this framework, the discussion of this article highlights the importance of making progress on strategic alliance between educational system, pedagogy (teaching and learning methods) and urbanism (see Figure 1). In achieving these interrelationships, we suggest the use of LEGO-bricks as a potentially powerful tool: (1) to make easier the understanding and comprehension of the physical/spatial characteristics of the built environment and its planning and design; (2) to adapt, implemented together with a problem-based learning methodology, the teaching of urbanism not only at universities (as it has been traditionally done) but also at other pre-university education levels (primary or secondary education).

Figure 1: A new strategic alliance: the convergence of educational system, pedagogy and urbanism -Source: authors.
While urbanism focuses on the characteristic ways of interaction of inhabitants of settlements with built environment, the way of teaching urbanism differs from country to country (AA.VV., 2006). For the Spanish case, we point out three problems regarding the education and practice of urbanism (Moya, 1997; Ruiz, J. 2002; Sánchez de Madariaga; 2001; Terán, 2005; Ninot, 2005; López de Asiain et al, 2011; Ruiz-Apilánez, Solís & Ureña, 2015):

i. In Spain, there is not a Degree in Urbanism. The teaching of urbanism takes place (mainly) within the Bachelor’s in Architecture, Civil Engineering, Geography and Law and specific Masters. Quite apart from the specific reasons of this situation, the teaching of urbanism suffers from the lack of a greater presence in university study plans and even more importantly, new methods, tools and instruments must be incorporated to lead and anticipate socioeconomic process ongoing and to face up to different proposal based on different objectives.

ii. Despite there are some previous experiences and researches in regards to the teaching of the architecture and urbanism at pre-university levels in Spain (Muntañola, 1984; 1997; Raedó, 2013; Encinas, 2013) there is a key gap: the Spanish Education System do not integrate the urbanism in a secondary and primary education.

iii. Even though the widespread social acceptance of town planning practice development as a framework of the processes of urban transformation, the social function urbanism in Spain has vanished. The two main reasons why the practice of urbanism is being discredited, is the corruption in urban planning and its materialization under mercantilist (economic) logic. In such a situation, it is necessary to foster a new urbanism culture, linked to the transparency, availability of reliable data and citizen participation. The city is not just a space (urbs), but it also is a group of people who live in community (civitas). Thus, all citizens [the draft architectural policy of the Republic of Croatia, Apolitika, presented in May 2012, stresses that “education about the significance of the quality of the built environment must include all individuals, from the earliest age to adulthood” (Ministarstvo zaštite okoliša, prostornog uređenja i graditeljstva, 2012, p. 32)” (Košćec et al, 2013)] shall have the right to participate and get involved in the process of the built environment transformation.
In this context, our general work hypothesis (see Figure 2) is the use of LEGO-bricks as an innovative, creative and complementary teaching tool in urbanism. Its use allows: (1) to strengthen the understanding and clarifying the content concerning concepts, spatial relationships and parameters in urbanism; (2) to introduce the discipline of urbanism at other educational levels apart from universities, such as at pre-university levels.

**RESEARCH HYPOTHESIS**
LEGO-brick as an innovative, creative and complementary teaching tool in urbanism

**OPPORTUNITIES**
(to overcome the existing gaps when teaching urbanism)
- to introduce the urbanism discipline at pre-university educational curricula
- to take advantage of LEGO-Bricks opportunities as a didactic tool in teaching urbanism at different education levels

**THEORETICAL AND INTERPRETATIVE FRAMEWORK**
I. **LEGOS and teaching-learning process** (learning theoretical approaches that include LEGO-bricks)
II. **LEGOS the teaching of urbanism** (theoretical contribution-benefits of using LEGO-bricks in the teaching-learning processes of urbanism)

**CASE STUDIES**
(methodology: LEGO-based workshop)
I. **HIGH SCHOOL** (PRE-UNIVERSITY LEVEL). The case of the International Knowledge Fair (Erasmus +) in Almagro.
II. **UNIVERSITY**. The case of School of Architecture in Toledo-University of Castilla-La Mancha

**CONCLUSIONS** (in the context of urbanism teaching-training)
LEGO-bricks improve instruction regarding concepts, spatial properties and parameters (theory), provide collaborative, critics, inquiry-based and active learning process (project/exercise stages) and support different spatial options (social&economic&sustainable solutions and creative results) at different levels of education

Figure 2: Research framework -Source: Authors.

2. **THEORETICAL FRAMEWORK**
2.1 Legos and teaching-learning processes
Learning theories are conceptual frameworks in which knowledge is absorbed, processed, and retained during learning. Cognitive, emotional, and environmental influences, as well as prior experience, influence the way
understanding is acquired and knowledge and skills retained (Illeris, 2004; Ormrod; 2012). In this general context, some experiments have already included LEGO as an innovation tool in the teaching-learning processes. Bearing in mind the opportunities/advantages of different teaching-learning strategies such as gamification (using games driven by educational goals, not entertainment), inverted classroom (type of blended learning that reverses the traditional learning environment) and science fiction prototyping (using science, technology, engineering, and math (STEM) programs to describe and explore the implications of futuristic technologies and the social structures enabled by them), it is possible to differentiate various benefits (see Figure 3) from using LEGO-bricks within teaching workshops in the learning process (Rasmussen, 2006; Rasmussen Consulting, 2012; Frick et al., 2013; Chang and Yeh, 2015; Herold et al. 2016; Fletcher et al., 2016).

The main benefits of using LEGO-bricks are (Rasmussen Consulting, 2012; Chang and Yeh, 2015):

i. Versatility: LEGO-bricks allow students to design, build, and program an infinite variety of solutions. The reusable nature of LEGO bricks allows students to suggest different alternatives/proposals. The ability to “try out” a number of designs facilitates open-ended design problems in which creativity is emphasized.
ii. Learning by playing: LEGO-bricks allow students learning through exploration, storytelling — tell your history, vision, way forward— and metaphors.

iii. Hand-mind connection or Constructionism: LEGO-brick favor interconnection between brain and hands. This opportunity means building knowledge by building things (i.e. by making formal and abstract ideas more concrete and tangible, therefore easier to understand.

iv. Engagement: The physical and tangible construction allows students to have conversations which flow without the fear of treading on personal feelings. Besides, LEGO-bricks allows a collaborative learning and provide the opportunity to work in groups, discussing/defending/sharing their own ideas and listening/accepting/understanding other’s thoughts.

v. Cost: LEGO-bricks are an affordable way to introduce haptics in a pre-college or college laboratory.

2.2. Legos and the teaching of urbanism

In comprehending cities and territories, Paccione (2001) points out that technological, demographical, political, social, cultural and environmental changes are the main factors in determining cities and territories’ transformation during the years. Besides, it is possible to recognize a number of approaches to understand (analyzing-diagnosing-proposing) cities: a) historic approach, b) dialectical approach, c) functional approach, d) spatial approach, e) ecological approach. In this context, since the 1950s the ‘game theory’ was incorporated as a way to characterize the interrelations between agents participating in the city projects (Ureña, 1980:67).

In the context of learning techniques, the recently use of LEGO in teaching urbanism is framed in the ‘urban simulation games’ that became popular in the 1960s. According to Solá-Morales (1970), the ‘game theory’ enables simulating cities and territories, improving the urban theory in two ways. First, as a dynamic way of building the city. Second, as a way to introduce students into the decision process, providing a learning experience based on the experimentation.

The teaching experiences regarding the relation between education-simulation/game-city originated in the 1960s and 1970s, either at the international (Feldt, 1964; Duke, 1964; Taylor, 1971; Coppard and Goodman, 1977; Crosby, 1973; Armstrong and Margaret, 1973) and the national scales (Solá-Morales, 1970; Ureña, 1979; 1980). The evolution in this teaching field has been characterized by two main features. Firs, the use of simulation games tends to be integrated in the planning process and in the prediction of spatial patterns regarding land uses, density, transport system, etc (Venter and Coetzee, 2014; Stephens, 2016). Second, together with the schools of Planning,
other disciplines are increasingly paying more attention to the development of simulation games to help in the urban decision process: -UMI, Pulse, UrbanSim, SimCity, CityOne, ESRI's City Engine…. - (Venter and Coetzee, 2014; Elabd and Hallowell, 2015; Stephens, 2016).

Within this context, where during the last years the use of computational tools have become more common (for instance, the project Cityscope-Changing places carried out at the MIT) (Cecchini and Rizzi, 2001; Ruffat and Minassian, 2017), the use of LEGO-bricks is recently being suggested to take advantage of people’s abilities to imagine, describe and design thanks to the ‘hand-mind’ connection (Rassmussen, 2012) and that can help in providing solutions to the main urban issues (Rasmussen, 2006; Frick et al., 2013; Chang and Yeh, 2015; Herold et al. 2016; Fletcher et al., 2016).

This paper suggests the introduction of LEGO in a context of Problem-Based Learning (PBL) teaching approaches (recently evolving to/being substituted flipped classroom -or inverted classroom format) as a new innovative urbanism teaching practice (see Figure 4). Traditional workshops/PBL techniques are educational procedures that have been generally used at School of architecture/civil engineering in teaching urbanism. This procedure explores the importance of placing students the control of their own learning (although complemented with traditional lectures and teacher’s guidance). The currently emerging flipped classroom describes a reversal of the traditional teaching where students gain first exposure to new material outside of class, usually via reading or videos, and then class time is used to do the harder work of assimilating that knowledge through strategies such as problem-solving, discussion or debates (Brame, 2013).

In this context, LEGO-bricks can be considered as an innovative and creative tool since they encapsulate some spatial properties which can easily connect to urban concepts and parameters and urban planning-design strategies (see Figure 5). In a general way, LEGO-bricks allow the understanding of urban forms (street network/open spaces, blocks, plots and buildings -housing, retail, office, industry, facilities-).
3. METHODOLOGY.
In order to achieve the double aimed of, on the one hand, strengthening the understanding of basic planning concepts/indicators at universities, and on the other hand, introducing the discipline of urbanism at other educational levels apart from universities, such as at pre-university levels, we developed an innovative pedagogical activity with LEGO-bricks at different educational levels. We support the idea that students learn more when having fun and being engaged in their learning (active learning) (The term active learning was introduced by the English scholar R W Revans - 1907–2003-. In active...
learning, students participate in the process and students participate when they are doing something besides passively listening. Active learning is a method of learning in which students are actively or experientially involved in the learning process and where there are different levels of active learning, depending on student involvement, Weltman, 2007). Play not only aids children's mental and physical health, it teaches them risk taking and problem solving skills, promoting imagination, independence and creativity (the role-playing) (Role-play is a technique that allows students to explore realistic situations by interacting with other people in a managed way in order to develop experience and trial different strategies in a supported environment. Depending on the intention of the activity, participants might be playing a role similar to their own - or their likely one in the future - or could play the opposite part of the conversation or interaction - Available at: https://blogs.shu.ac.uk/shutel/2014/07/04/role-play-an-approach-to-teaching-and-learning). This is the reason why this activity is envisioned more as a game rather than as a merely practical exercise.

The activity consisted on developing an empty area in the outskirts of a hypothetical city (see Figure 6). The area was divided into sectors and crossed from North to South by a river. Each sector shares part of the river, being the rest of the sector framed by main/arterial roads (which act as separation between sectors).

The students were divided into groups. Each team was assigned one of those empty sectors and developed them given a Floor Area Ratio (FAR), and consequently, the maximum buildings’ total floor area (see Figure 6) (The quantitative aspects - FAR, etc.- can be used both to describe and characterize, as well as design/organize/develop different urban environments or spatial solutions.). They were provided with:

- An A3 sheet with a 5mx5m (in a scale of 1:600) grid and the boundaries of the sector (river and arterial roads) printed on it (see Figure 6). This means a total (developable) area of 175m x 250m (43,750 sqm);
- A certain number of Lego bricks (the yellow ones representing retail land uses and the white ones representing housing), depending on the maximum developable area considering the assigned FAR (see Figure 7).

One of the advantages of Lego’s is the fit of the dimensions of the simple brick module. The horizontal pitch (or distance between knobs) of each Lego brick is approximately 8 mm. The vertical pitch, or height of the classic brick, is 9,6mm. Given a reasonable planning scale of 1:600, this 8mm dimension represents 5m (coinciding with the 5x5m grid), a module that works with most of the typical building. For example, the classic brick of 2x4 modules works almost perfectly to represent a residential single-loaded corridor building or a two-stories detached/semi-detached/terraced house of 200 sqm (100sqm each story). The brick height, about 6m at that scale, is also suitable for representing one story of commercial or institution building, or two floors of residential.

- A 5mx5m (in a scale of 1:600) grid printed on a blue sheet (see Figure 7), representing the minimum required (reserved) area for facilities
Playing with LEGO-Bricks as an Innovative Pedagogical Tool at Pre-University and University Levels for Teaching Urbanism

(schools, hospitals, etc.) according to the Castilla-La Mancha Regional Plan. As for the Castilla-La Mancha Regional Plan, it is necessary to provide 20sqm of facilities for each 100sqm of housing/retail.

- A 5mx5m (in a scale of 1:600) grid printed on a green sheet, representing the minimum required (reserved) area for green spaces (playgrounds, parks…) according to the Castilla-La Mancha Regional Plan (see Figure 7). As for the Castilla-La Mancha Regional Plan, it is necessary to provide the 10% of the total developable area if the FAR is lower than 0,6sqm/sqm and 18sqm for each 100sqm of housing/retail if the FAR is greater than 0,6sqm/sqm.

In summary, given the FAR (and the maximum buildings’ total floor area), each team should organize the sectors considering the following requirements:

- a percentage of retail between a 5 – 10 % of the total floor area (as decided by each group)
- minimum requirements for facilities (schools, hospitals, …) according to the Regional Plan
- minimum requirements for green open spaces (parks) according to the Regional Plan
- minimum requirements for streets (a minimum width of 10 m is set; the width should be multiple of 5m)

As previously mentioned, this innovative activity was developed in two phases (at two educational levels). The approach followed in each case was slightly different adapting the game to the objectives sought in each case (on the one hand, the introduction of urbanism in secondary schools and on the other, the consolidation of basic planning concepts among university students at the Schools of Architecture/Civil Engineering).
Figure 7: Materials provided to the different teams (according to the assigned FAR)
On the one side, the activity was developed with High-school students, as part of the International Knowledge Fair (Erasmus +) celebrated in Almagro in February 2017 and with the participation of different European High-schools. In this case, the activity started with an introductory (and participatory) lecture about: a) the importance of urbanism and architecture in daily lives (we live in the city, work/study in the city, play in the city, etc.), b) the common (urban) elements in a city and how their different combination results in different urban configurations; c) two essential planning concepts, i.e., density and floor area ratio as two indicators to characterize the city (the importance of these parameters/indicators lies in the fact that more FAR/density means more people living in a certain area and consequently a greater need for facilities - schools, hospitals, theatres… and green areas -parks, playgrounds…); d) brief/basic building typology distinguishing only among terraced/semi-detached/detached houses and condominiums (see Figure 5).

After this brief introduction/lecture, the game was explained to all the students and the materials and instructions to follow it were distributed among the alumni. A personalized tutoring was done with each group after that, guiding their work/proposal. In this case, the procedure was the following:

a. Taking the assigned/given Lego Bricks, the students were asked to design the buildings [A clue was given to each group in regard to the assigned FAR. A) For a FAR of 0.3 sqm/sqm, the type of building is mainly detached/semi-detached/terraced houses. B) For a FAR of 0.5 sqm/sqm, the type of building could be a mixed of detached/semi-detached/terraced houses and (not very high) condominiums. C) For a FAR of 0.7 sqm/sqm, the type of building is mainly condominiums. D) For a FAR of 1 sqm/sqm, the type of building is mainly condominiums]

Some suggestions/reminders were also given:

- Each 4x2 white brick is equivalent to a detached/semi-detached/terraced house (of 200sqm distributed in two floors) and to a (100sqm) flat when located in a residential building.
- Housing and retail could be combined in the same building.
- Lego Bricks can be changed with the teachers remembering that:
2. Distribution of the designed buildings throughout the developable area (A3 sheet). The students were asked to check that:

- The street widths were appropriate:
  - Minimum of 10 m (and multiple of 5m)
  - The widths varied regarding the relevance of the streets within the city and the height of the adjacent buildings (usually, the same width as the height of the buildings).

- They had avoided cul-de-sac streets

- All the houses/retails had direct access to the street (and it were not redundant)

- All the houses have direct air circulation and natural lightning

- The minimum requirements for facilities and green spaces were fulfilled. They were reminded that greater Building's Total Floor Areas mean more people and therefore, more green spaces and facilities were needed. They could distribute the facilities for facilities, be aware of the type of building/use in order to allocate the surfaces (as a guidance, we provided the alumni with an indicative list of areas occupied by different types of facilities). For green spaces, they should be bigger than 200sqm and a 15m diameter circle should be drawn inside them throughout the Total Area (A3 sheet) by cutting the provided (blue and green) grids or concentrate them in the same location.

While distributing the designed building, two situations could be found:

- On the one hand, if there was not enough space to allocate all the projected/designated buildings using the whole amount of Lego-bricks, the students were suggested to check: the existence (and number) of empty areas throughout the A3, the number and width of the provided/designated streets, the number and surface of private open areas. In that case, they should reduce them to the minimum. If not (they cannot be reduced anymore), students should increase the height of their buildings.

- On the other, if there were many empty areas throughout the A3 sheet after allocating the buildings, facilities and green spaces, students were suggested to expand their buildings, decrease the number of heights of the buildings and/or check that the greater surfaces
allocated to facilities, green spaces or streets (greater than the minimum/required ones) were justified (for example, a school for the whole city).

3. Discussion about the proposal with the teachers and its afterwards redefinition (streets grid, housing plots, buildings, facilities and Green spaces).

On the other side, the activity was developed with students of Architecture and Civil Engineering (particularly with second-year students of the School of Architecture and fourth-year students of the School of Civil Engineering of the Univ. of Castilla-La Mancha). In this case, the activity also started with an introductory (and participatory) lecture. However, the currently successful instructional strategy known as the ‘flipped classroom’ was introduced. This pedagogical technique consists in moving activities traditionally considered as homework, into the classroom while students watch online lectures, collaborate in online discussions, or carry out research at home and engage in concepts in the classroom with the guidance of a mentor. University students had been previously provided with additional/complementary instructional contents and readings about urban forms/morphology so they could best take advantage of and interact at this introductory lecture. The opportunity of this pedagogical technique is that students are actively involved in knowledge acquisition and construction as they participate in and evaluate their learning.

In this case, the abovementioned introductory (and participatory) lecture was about: a) the importance of urbanism and architecture in daily lives (we live in the city, work/study in the city, play in the city, etc.), b) the common (urban) elements in a city and how their different combination results in different urban configurations; c) two essential planning concepts, i.e., density and floor area ratio as two indicators to characterize the city (the importance of these parameters/indicators lies in the fact that more FAR/density means more people living in a certain area and consequently a greater need for facilities (schools, hospitals, theatres…) and green areas (parks, playgrounds…). While with secondary students, the planning concepts were only briefly explained/introduced, a special attention was paid to the calculation of the FAR for different real examples and to the application of different scales; d) collaborative elaboration of a building typology, defining different spatial parameters (plot and building dimensions) based on real and measured examples and the background gained with the preliminary readings. A more in-depth debate about building requirements and their location within the urban fabric (separation between buildings, orientation, etc.), streets and open spaces
design, the private-public dichotomy, green spaces and facilities requirements (and the specific ones considered by the Castilla-La Mancha regional plan), etc. After this brief introduction/lecture, the game was explained to all the students and the materials and instructions to follow it were distributed among the alumni. A personalized tutoring was done after that with each group, guiding their work/proposal. In this case, the procedure was the following:

1. Taking the assigned/given Lego Bricks, students (distributed in six teams) were asked to define the street network, allocating the necessary/required facilities and green areas and the assigned building's total floor area (zoning floor area). The leitmotif of their proposal should be clear and coherent.

2. During a brainstorming session/round table discussion, the six groups put together their different preliminary proposals to discuss (reach an agreement) about permeability issues (continuity of the urban network) and the coherence of the whole (six sectors) development (the distribution of green spaces and facilities and the avoidance of duplications). This step helped students to consolidate the idea of context (their projects are not isolated but coexist with other elements within the urban fabric).

3. After this group/collaborative session, each team redefined their proposal which was revised with the teachers. Special attention was paid to the relationship/provision of public/private open spaces, building separation, shortage/duplicity of streets (avoidance of cul-de-sacs), block and plot dimensions, retail location, diversity of plots and types of buildings.

4. With the indications/suggestions received in the previous session with the tutors, the proposal was again redefined.

5. During a last (debate) session, students presented their proposals. By putting together, the different exercises, students understood that different FAR lead to different urban forms.

4. RESULTS AND IMPLICATIONS/DISCUSSION.

The great teaching results obtained from this activity enhances active learning and role-playing. In other words, best learning experiences emerge when engaged in activities that one enjoys, cares about, and has even passion for. Besides, hands-on activities help children learn through playful exploration and inquiry (Figure 8). This innovative teaching activity reinforces what others have already supported in this sense: “learning happens especially well when people are engaged in constructing a product, something external to themselves” (Frick et al, 2013). Constructing things and constructing knowledge go on simultaneously, reinforcing each other: “when people construct things out in
the world, they simultaneously construct theories and knowledge in their minds” (Rasmussen Consulting, 2012, p. 5). But constructionism is not only about children’s learning, it is more widely about making formal and abstract ideas more concrete and tangible, therefore easier to understand. Concrete thinking, i.e.: thinking with and through objects, is a mode of thinking that is complementary to abstract and formal thought. At the core of this activity is the idea that “when we ‘think with objects’ or ‘think through our fingers’ we unleash creative energies, modes of thought, and ways of seeing that most adults have forgotten they even possessed” (Frick et al, 2013:8). This is the reason why the activity has also succeeded among university students.

However, in this innovative ‘playful learning’ activity, the role/importance of teachers taking part in it is crucial and needs to be done in a genuine and sensitive way (Figure 9). They need to take part into the play (right time, right way), tutoring/guiding students (teachers need to enrich student’s play by helping them with material, ideas and practical attainments) while giving their certain autonomy (students need to plan and accomplish their own ideas). Students appreciate teachers taking part in their play/decisions and form closer and stronger relationships with teachers who interact with them.
The success of this teaching activity also lies in the general familiarity of participants with Lego (which reduced the need for induction to the activity) and in the flexibility property of LEGO-bricks which allows students to easily/quickly modify their proposals (by moving throughout the developable area the streets, buildings, facilities and green open spaces, evolving gradually towards the final decision). The works/proposals evolve gradually toward the final result and the students have a highly approximated perception of the progress of their work, developing a continuous evaluation of it (Figure 10).

In regards to the methodology (workshop with LEGOs), this activity demonstrated the active participation of students in the learning process and the rich exchange of their viewpoints and experiences among their classmates (figure 11). I.e. the teamwork (as collaborative and interactive system, between students and students and teacher) stimulates discussion. Group work builds strong links between students, promotes debate and the responsibility of taking decisions. Through this teaching strategy, students acquire a broader knowledge base which will serve them when participating in activities more similar to professional work.

![Figure 10: Work in progress: proposals evolve gradually toward the final result. (Left) High-school students. (Right) University students. T.G.: Teachers guidance/feedback (to the initial proposal)](source: Authors.)
It is important to mention here the opportunity of developing this activity with international students. This was the case of the activity involving high-school students. Since the game was developed as part of the International Knowledge Fair (Erasmus +) celebrated in Almagro in February 2017 and with the participation of different European High-schools, students developed an extra skill: the ability to share their ideas in a different language.

Regarding the teaching of the urbanism discipline, after this activity, apart from being more aware about the importance of architecture and urbanism, students assimilated/internalized basic urban notions. Thanks to the plainness of LEGO-bricks (regarding their formal aspect), it was possible to simplify the complexity of basic planning concepts (figure 12). Consequently, more attention is paid to the general urban concepts (connectivity of the street network, interrelation building-street, etc.) rather than merely to the building details.

Nevertheless, the level of deepening into these planning concepts is different regarding the educational level. All parameters/areas (maximum developable area, and minimum required areas for facilities and green spaces according to
the given FAR) were given to the alumni (regardless their education level). Nevertheless, high-school students assumed these figures, while university ones were asked to comprehend/obtain them. Besides high-schools students were provided with some indicative block, plot and building dimensions for the different building typologies (detached/semi-detached/terraced houses or condominiums), while university students dedicated part of a session to obtain and understand those figures. Finally, as a summary of the whole activity/process, university students were also asked to provide:

- The leitmotif of their proposal and the scheme of their street network (to check its coherence with the rest of the developable sectors)
- The most important street sections and the skyline of the overall sector (to understand if the proposal in terms of building heights and streets widths follow a gradual reasoning).
- A table gathering some relevant urban parameters about their proposal (and which allowed the comparison of the solutions obtained regarding the given FAR):

  * Plot surface (total) [sqm]
  * Public open space surface (total) [sqm]
  * Total developable area [sqm]
  * Gross space index [%]
  * Facilities’ area [sqm]
  * Green open spaces’ area [sqm]
  * Number of dwellings
    - In housing
    - In condominiums
  * Density [dwellings/Ha] and [inhabitants/Ha]
  * Minimum plot surface
  * Maximum plot surface

At the end of the activity/workshop, the students presented their formal results/proposals (figure 13). While proposals were only discussed individually in the case of high-schools, they were also put together and debated bearing in mind the whole context, comparing with other teams’ proposals (and therefore, with other FARs). This means that in the case of university students, the activity was developed at two scales of approximation: individual sector and a sector conforming a part of a whole area. In any case, students realized about the importance of the surrounding, reinforcing the idea of context and the need to avoid falling into the mistake of considering projects individually and not as part of a whole city.
Besides, while the activity was developed during a single session in the case of high-schools, it extended during three sessions (3 hours each) for the university students. The students' development and level of engagement improves when the workshop is carried out in an intensive manner and the group is able to utilize the highest concentration of strengths, rhythm, and collaboration. The students acquire greater motivation and integration in the group and the ability to obtain a result in a short period of time frees them to dedicate them to outside work.

Contrary to what others have already stated in regards to the ability to enroll in a class depending on whether they have or not certain previous knowledge bases in the fields of urbanism and design (Portalés-Mañanós et al., 2012), the acceptance of the activity by all the students, regardless their education level, and their level of engagement is admirable and the results noteworthy. Nevertheless, apart from the obvious differences due to the age, the fact that university students already had a background on urban concepts, led to more interesting urban solutions/results.

In this last sense, the attractiveness and simplicity of the activity allows its extension to the real planning process (professional world) opening the urban decisions to all individuals. Lego-bricks enable “participants to break down conceptual boundaries, articulate ideas, overcome preconceptions and access their own creative imaginations around the topic of the future high street. As
each group produced different ideas, and as it was not the aim of the workshop, a single definitive imagining of a future smart high street was not created. However, the process illustrated the value of using innovative methods to capture a greater breadth of stakeholder voices in town planning and potentially in other forms of social engagements requiring broad stakeholder input.” (Fletcher et al, 2016). Lego-bricks facilitate collaborative and positive interactions amongst groups of different backgrounds and mixed abilities, providing the means to tailor real time strategies when working amongst decision-making situations. Using Lego allows participants to actually realize their vision of a future high street by interactively building models because ‘when people construct things out in the world, they simultaneously construct theories and knowledge in their minds’ (Rasmussen Consulting 2012).

Beyond the abovementioned achievements of the activity, it has allowed bringing the discipline of urbanism to a wider group, developing sensitivity for architecture and urban space (involving a fundamental understanding of the “forms” of the space all around us, of our needs and activities linked to that space, and of our ability to transform that space according to our needs). Architecture and the built environment – our buildings, villages, towns, cities and landscapes – provide the framework for all human activity and interaction. The future quality of our environment will be determined by the children of today (their ability to make sound, informed decisions will depend on the knowledge, skills and abilities they gain in the course of their education). This idea and the importance of taking care for developing great public spaces has been reinforced among the students with this game, which reinforces the need to introduce urban concepts at primary and secondary levels curricula.

5. CONCLUSIONS

This paper shows an innovative pedagogical activity developed at the UCLM and directed to secondary and university (Architecture and Civil Engineering students) students. The aim of this activity was twofold. First, to strengthen the understanding of basic planning concepts, spatial relationships and parameters in urbanism. Second, to introduce the discipline of urbanism at other educational levels apart from universities, such as at pre-university levels, highlighting its relevance and the importance of successful urban designs in daily lives (architecture and urbanism provide a framework for our life, which means that they are thrust upon us as the enforcers of our sensitivity almost as soon as we are born). That is why such topics should be systematically introduced to children at a very early (pre-school) stage. In achieving this aim, the hereby presented activity (conceived more as a game rather than a traditional lecture/workshop) took advantage of LEGO-bricks’ spatial features
as an innovative, creative and complementary teaching tool in urbanism (in other words, turning a toy into a didactic tool). The activity has revealed noteworthy results. First, as it has previously concluded, this activity has highlighted the importance of hands-on experiences in science and engineering education (Felder, 1993). Besides, the activity has demonstrated the potential of LEGO-bricks to make architecture and urbanism more attractive and accessible to students from a wide range of backgrounds/educational levels and with varied interests. This playful learning activity has demonstrated that successful learning experiences emerge when engaged in activities that one enjoys. The activity, conceived as a group work, favors interaction between students and between students and professors (feedback). The students acquire specific knowledge and skills from the material of urbanism and design which is reflected in the results and general abilities such as oral expression, graphical expression, defense of a work, debate, (and, in the case of high-schools, even practicing of other languages) etc.

In summary, this activity has therefore allowed us to consolidate/reinforce some key urban concepts and indicators among university students (LEGO-bricks help simplifying cities’ complexity) but also to introduce the importance of architecture and urban studies among secondary students. Finally, due to the attractiveness and simplicity of the activity, we suggest its extension to the real planning process (professional world) opening the urban decisions to all citizens.

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PLAYING WITH LEGO-BRICKS AS AN INNOVATIVE PEDAGOGICAL TOOL AT PRE-UNIVERSITY AND UNIVERSITY LEVELS FOR TEACHING URBANISM


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PLAYING WITH LEGO-BRICKS AS AN INNOVATIVE PEDAGOGICAL TOOL AT PRE-UNIVERSITY AND UNIVERSITY LEVELS FOR TEACHING URBANISM


ABSTRACT
In the framework of the Spanish College Education it’s becoming increasingly important to help students develop the competences required to successfully finish their academic studies as well as to enter the professional world. For that reason, in the Modern Languages Institute at Antonio de Nebrija University (Madrid) we are developing a Project-Based Learning format for the teaching of English as a Foreign Language. This motivating project-based collaborative teaching and learning format, both online and in the classroom, develops desirable competences such as problem solving, time management and teamwork, while it strengthens workgroup members’ autonomy and social skills. The purpose of this paper is to present three collaborative experiences that took place at Antonio de Nebrija University in the 2016 Fall semester with Freshmen English as a Foreign Language B1 and B2 level students (which correspond to intermediate and upper intermediate levels according to the Common European Framework of Reference for Languages). The tasks developed were: the elaboration of a hotel website, a class newspaper and the writing of the script of a short story and its subsequent dramatization. The results obtained from the students’ perception surveys about their collaborative experience will also be presented.

KEYWORDS: collaborative work, competence development, Project-Based Learning, EFL.

1. INTRODUCTION
In the present context of the Spanish higher Education system, there is a constant effort to find more efficient ways to help students, not only to learn the contents of their majors, but also to develop the necessary competences to successfully finish their academic itinerary and enter the professional field. This effort is especially evident in the second language classroom. Diverting form previous methodological trends, Project-Based Learning (PBL) stands as a
collaborative method that encourages students to build their knowledge in an autonomous and responsible way and, at the same time, to develop the different transversal competences that will be useful for their academic life as well as for their professional future.

The purpose of this paper is to present, after a brief introduction of the theoretical framework for PBL, three collaborative experiences that took place at Antonio de Nebrija University in the 2016 Fall semester with different English as a Foreign Language (EFL) B1 and B2 classes. These levels are equivalent to intermediate and upper intermediate levels according to the Common European Framework of Reference for Languages (Council of Europe, 2011), a set of guidelines used across Europe to describe achievements of learners of foreign languages. The projects developed were: the elaboration of a hotel website, a TV spot, and the writing of the script and acting of a short story. The results obtained from the students’ perception surveys about their collaborative experience will also be presented.

2. THEORETICAL FRAMEWORK

Project-Based learning (PBL) is a model that organizes learning around projects. […] projects are complex tasks based on challenging questions or problems, that involve students in design, problem-solving, decision making, or investigative activities; give students the opportunity to work relatively autonomously over extended periods of time; and culminate in realistic products or presentations. (Thomas, 2000, p. 1).

The foundations of PBL lay in constructivism and, especially, in Vygotsky’s Sociocultural Theory of the Mind (1978), that states that higher cognitive processes emerge as a consequence of our interactions with others. The Zone of Proximal Development (ZPD) is the expression of Vygotsky’s theory and makes reference to the difference between what students can do by themselves and what they can do with help (mediation). The student’s active role in social interaction and mediation (either by an instructor or classmates) precede development and foster the learning process. Another important concept in the Sociocultural Theory is Transference, defined as an individual’s ability to re-contextualize learning to apply it to new, more demanding problems. (Feuerstein, Rand & Hoffman, 1979).

Both ZPD and Transference are the basis for PBL, a collaborative methodology that requires students’ interaction with their peers to successfully achieve the assigned task. Thus, they will not only acquire the specific knowledge related to the task but they will also develop transversal competences such as learning autonomy, self-criticism, responsibility, social skills and problem-solving abilities. Once students acquire these competences,
they will be able to use them in future academic and professional projects, actively participating in a lifelong learning process.

3. METHODOLOGY

The three Project-Based collaborative experiences presented in this paper took place at Antonio de Nebrija University in the 2016 Fall semester with different EFL B1 and B2 classes. At Nebrija University students are placed in their English class according to their language level and not their degree, so these classes usually contain students from a variety of majors. As in PBL “students engage in real, meaningful problems that are important to them” (Krajcik & Blumenfeld, 2006, p.318), the projects developed were: the elaboration of a hotel website, the recording of a TV spot and the writing of the script and subsequent acting of a short story. All projects were developed using as a starting point the contents and topics of *Speak Out* (Clare & Wilson, 2012; Eales & Oakes, 2012), the class manual chosen by the Modern Languages Institute at Antonio de Nebrija. For the development of the projects students used their own cell phones, tablets and/or laptops as they usually bring them to class but they are also allowed to use the class computer if they need to.

3.1. Hotel website project

This B2 level project was designed for a class of 20 junior college students. The objective of the project was to create a hotel website for a specific target traveller of the students’ choice. In previous sessions, “niche holidays” had been discussed and travelling vocabulary as well as relevant grammatical contents (future for plans, facts and predictions; modals to express different degrees of obligation; structures to make recommendations) had been dealt with. Students also became familiar with hotel websites format and travelling advice. In order to create their own website, students were explained the basics of Wix (www.wix.com), a free intuitive online tool that allows for the personalization of a variety of website templates.

To elaborate their own hotel website, students were assembled in groups of three or four and all the work was made in the classroom in three sessions of 90 minutes. All the websites were required to include certain information such a description of the hotel and its location; room options; services; recommended activities, and a “how to” section with traveling tips. Students were also required to use the vocabulary and grammatical contents covered in class during the preparation sessions. Once the websites were finished, students presented them to the class during the fourth session.
3.2. Tv Spot Project
This B1 project was developed in a 21 junior college students class. The objective of the project was to invent a product for a given target client and elaborate a TV spot for it. In previous sessions, the class covered the necessary grammar structures (future tenses for predictions, comparative structures for description, descriptive adjectives, question tags and rhetorical questions) and inventions and technology were discussed. Also, in order to become familiar with advertising and marketing, students were informed about ways to identify potential customers and learned about product description and advertising techniques.

In groups of three or four, the students had to think of an invention that could improve the life of a given target customer: their professor. Then, they had to design the product and elaborate a detailed description of it, write the script for the TV spot and record it. Projects had to include a set of descriptive structures and contents, a number of positive consequences for the potential target client, some of the advertising techniques covered in class (of their choice) and evidence of a strong connection between the product and the target customer. All the steps were done in class (three 90-minute sessions) except most of the spot recordings, as some students preferred to do them in their free time. On the fourth session, groups presented their spot to the class.

3.3. Short Story Project
This project was implemented in a B2 class with 20 junior college students. The objective was to write the script of a short story so that students could act it out in front of the class and have their classmates writing a review of it for a magazine. As a preparation, narrative tenses, adverbs and discourse connectors, and short stories writing tips were dealt with in class. Students also became familiar with magazine film reviews structure and vocabulary.

For the project, students, in groups of three or four, had to write the script of their short story that needed to include their selection of characters, settings, objects, vocabulary and grammatical structures from a given list elaborated by the professor. First drafts were co-evaluated and commented by another group so that they could be improved before submitting the final version. After watching all the stories represented in class, students, individually, had to pick their favorite and write a review for a magazine. The projects were completed in four 90-minute sessions.

3.4. Projects evaluation and feedback
During in-class project work, students received the professor’s and classmates feedback and help when needed. They also received complete written feedback before submitting the final versions. For all the projects, professors evaluated students in different categories such as task fulfillment, compliance with the
specific task and oral presentation requirements. As Project-Based learning work implies the active collaboration of all group members, students missing one or more sessions were penalized in their individual grade accordingly, thus receiving lower grades that the rest of the group members.

3.5. Students’ perception of the project-based experience
In each case, upon completion of the projects, students were given a survey in order to gather information about their perception of the PBL experience. Surveys were printed out and distributed in class to ensure participation, and students filled them in anonymously. 60 surveys were completed, as one student in one of the classes was absent that day. The students completing the Hotel Website Project were given a survey adapted from Vinagre (2016) and students taking part in the TV Spot Project and the Short Story Project filled in a survey adapted from Burdett (2003). Both surveys were intended to shed some light on the student’s perception of collaborative learning, group work, competences development and learning achievements.

4. RESULTS
In this section, both the final products of the projects and the results of the perception surveys will be presented:

4.1. Projects final products
The B2 class doing the Hotel Website Project produced six websites targeted to different vacation market niches, from romantic hotels to family resorts, and included most of the requirements established. This B2 class also developed the Short Story Project but the professor grouped students differently. Eight short stories were produced and the acting out was recorded for the department. Topics for the stories included kidnappings, love stories and crimes, and all of the students submitted their story review. Six spots were recorded in the B1 class working on the TV Spot Project. Students were very creative and designed interesting inventions to improve their professor’s life, from a bag with a light inside to find things easily, to a twin clone or a gadget to freeze the class if they misbehave.

4.2. Perception surveys results
The results of the two surveys completed by the different classes will be presented according to their relationship regarding four main aspects: collaborative learning, student’s motivation, competences development and learning achieved.
4.2.1. Collaborative learning
In terms of the collaborative learning aspects of the Hotel Website Project, the vast majority of students (90%) affirmed that their group mates had collaborated well together. 76% felt they had been able to make important contributions to the website and 80% thought their group members had provided valuable comments during the editing and revision stages. With regards to leadership, 74% of them stated that one of the members of the group (including themselves) had taken on a leadership role.
A considerable amount of students working both on the Short Story Project (80%) and the TV Spot Project (82%) felt that their group work experience had been positive and thought the group had worked well (76% and 82% respectively).
The majority of the Short Story Project students (91%) also realized that group work requires as much work of him/herself as individual work. Logically, some problems, mainly regarding decision taking about contents and format and negotiation issues, arose during the elaboration of the task (54% in the Short Story Project and 58% in the TV Spot Project), but most of the times they were solved by the group (80% and 72% respectively).

4.2.2. Students’ Motivation
In general, most of the students enjoyed the projects and working in groups (86% in Hotel Website Project, 96% in the Short Story Project and 90% in the TV Spot Project). Actually, 86% of the students doing the Hotel Website believed their group had been successful in creating an informative and interesting website.

4.2.3. Competences Development
76% of the Hotel Website class believed they had learned about different aspects of collaboration and 72% even consulted other resources than the recommended in class to carry out the different tasks.
The two classes doing the TV spot and the short story declared having learned several transversal competences such as negotiating with other group members (72%), building positive relationships inside the group (78% and 82%), managing tasks efficiently (74%), sharing responsibility (80% and 76%), using rational arguments to persuade others (80% and 74%) and solving complex problems (74%).

4.2.4. Learning Achieved
Specific questions about learning achievement were only included in the survey adapted from Vinagre (2016). Thus, the class working on the Hotel Website felt the project had been a learning experience (82%) and 76% were able to use the foreign language (English) and the contents covered in class in the project.
Another source of information for the learning achievement were the final exams, which also evidenced the increase in their learning process with 95% of them passing and an average grade of 7.2 in the B2 class and 7.4 in the B1 class.

5. IMPLICATIONS/DISCUSSION.
Taking into account that the students involved in these three projects were first year college students and that PBL had not been a habitual methodology for them in their secondary and high school education, the experience results show that they considered it a positive learning experience. It was motivating, as they perceived their contributions were appreciated by the group and considered their peers’ contributions valuable as well. Also, learning achievement was successful as surveys and final exams show.

The groups became autonomously organized in an efficient way and, although problems arose, students were able to solve them, which shows the development and application of negotiation and problem-solving competences. Collaborative and social interaction skills were also improved and students felt they had strengthen bonds with their peers.

Also interesting is that, as English classes are the only subjects where PBL is fully implemented during the semester, students considered it a good idea to expand this methodology to the rest of their degree-specific courses.

6. CONCLUSIONS
The lesson learned from these EFL experiences reveals that PBL is a motivating methodology that encourages students to be responsible of their own learning process and helps them improve their second language competence. PBL also helps them develop many of the abilities and competences necessary for their future professional career as well. Students themselves felt they were able to use the required contents covered in class in their projects and appreciated this real-life approach to instruction.

However, it has to be said that, although PBL has proved to be an efficient and competence-developing methodology, some instructors are still reluctant to assume this new approach to teaching, as they need to face a new way planning their classes and monitoring students’ progress in a different working environment. Traditional final exams, still a typical evaluation tool in higher education, might be another challenge for PBL if they do not match the changes implied by this methodology.

Therefore, it would be desirable to take on more PBL experiences so its effectiveness and success are confirmed and a deeper change in course design
and evaluation system is implemented in higher education language teaching and learning.

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Designing and Implementing Engaging Learning Environments: Kindergarten Teachers’ Perceptions in three Chinese Societies

Peng Xu¹, Haidan Liu², Jing Li³, and Beibei Shi⁴

¹ Faculty of Education, Beijing Normal University
dennissxu1989@gmail.com
² No.5 Nursery School, Xi’an
haidanstar@126.com
³ Lian Hua Bei Kindergarten, Shen Zhen
weixiabubel@126.com
⁴ Mian Hua Hu Tong Kindergarten, Beijing
Sbb1108@163.com

ABSTRACT
Recent emphasis on learning environments in China’s kindergartens is highlighted in various Chinese societies, including Beijing, Xi’an and Shenzhen. Based on a constructive theoretical framework, early childhood educators as important gatekeepers of establishing learning environments were invited to share the professional and practical views on designing and implementing engaging learning environments. Totally, 15 early childhood educators (5 from Beijing, 5 from Xi’an, and 5 from Shenzhen) joined this study by completing an interview on engaging learning environments. Teachers in three areas unanimously asserted that engaging learning environments were supposed to promote their initiative and active participation and follow children’s interests and individualized needs. In addition, scaffolding was viewed as a main approach to facilitate children’s engagement. Significant differences were that teachers in Beijing and Xi’an focused on a teacher-controlled model with increasingly highlighting children’s perspective. While child-centered model was preferred in Shenzhen and children’s interaction with teachers, peers and environments was the key point.

KEYWORDS: Engaging Learning Environments, Teachers’ Perception, Kindergarten.

1. INTRODUCTION
Environment is an essential part in curriculum of early childhood education (Yang, 2011). As an important education source, it supports children’ learning and development through designing and implementing (Department of Education, 2011). However, some researches point out that learning
environment is still not engaging for children to actively participate, which reduces the expected effect of learning environment (Huang, 2010; Yang, 2011).

Currently, teachers remain to be the main designers of ECE learning environment even though children are increasingly treated as the key designers and contributors. Teachers’ beliefs, attitudes and practices are important for understanding and improving educational processes and they are closely linked to shape and implement learning environment (OECD, 2009). In China’s kindergartens, some researchers (Yuan, 2012; Lu, 2013) argue that as teachers dominate the process of designing and implementing learning environment, form and appearance are highlighted instead of applicability. As a result, children cannot get engaged and fully participate.

In this article, kindergarten teachers’ perceptions on designing and implementing engaging learning environment (ELE) will be described and compared in different regions in China in order to provide a comprehensive view towards ELE, explore current problems that hinder children’s engagement and make practicable suggestions.

2. THEORETICAL FRAMEWORK

This study examines, compares and contrasts kindergarten teachers’ beliefs, attitudes towards designing and implementing engaging learning environments in different regions in China. Through a constructivist view, children construct knowledge by building on their internal representations and previous experiences (Bopry, 1999; Sternberger, 2012). Thus the quality of the learning environment is a key factor affecting children’s learning and development and it is most readily modified (OECD, 2009). A learning environment based on constructivism supports children’s engagement and active participation. In such kind of environment, teachers are supposed to design an environment for children’s self-direction instead of fostering control on them (Bopry, 1999; Sternberger, 2012). In summary, this study covers teachers’ perceptions on learning environment as well as strategies on designing and implementing an engaging learning environment. Figure 1 illustrates the theoretical framework for this study and their assumed interactions.
3. METHODOLOGY.

3.1. Aims

The aim of the study is to draw on interviewees’ reflections on designing and implementing engaging learning environments in kindergartens via a semi-structured interview based on grounded theory. The following are the objectives of this study:

1. To investigate kindergarten teachers’ perceptions on learning environment.
2. To compare and contrast kindergarten teachers’ understandings on designing an engaging learning environment and the way to transit into practice.
3. To explore current problems that hinders children’s engagement and make practicable suggestions.

3.2. Design

A grounded theory study is the design of choice for a nested study (Birks & Mills, 2011; Charmaz, 2014). This research prefers a ‘Straussian’ school of GT, which means that researchers’ prior knowledge as well as personal bias are admitted and considered. As a qualitative and interpretive research method, GT enables researchers to explore the emerging issues with a greater freedom (Glaser, 2001; Jones & Alony, 2011).

3.3. Participants

This study chose three societies in China: Beijing, Xi’an and Shenzhen. These three cities located in northern, western and southern part of China separately,
with differing socio-economic and cultural background. One kindergarten was chose in each city and fifteen semi-structured, in depth interviews were conducted with fifteen participants (five in each kindergarten). Criteria for inclusion were kindergarten teachers with five or more years teaching experience and had environment related knowledge and practice.

<table>
<thead>
<tr>
<th>Area</th>
<th>Beijing</th>
<th>Xi’an</th>
<th>Shenzhen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>Mian Hua Hu Tong Kindergarten</td>
<td>No.5 Nursery School</td>
<td>Lian Hua Bei Kindergarten</td>
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<tr>
<td>Participants</td>
<td>(Year of teaching)</td>
<td>(Year of teaching)</td>
<td>(Year of teaching)</td>
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<td>B1 (12 years)</td>
<td>X1 (8 years)</td>
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<td>X3 (9 years)</td>
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<tr>
<td>B5 (10 years)</td>
<td>X5 (5 years)</td>
<td>S5 (25 years)</td>
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</table>

Table 1: Information on participants

3.4. Data collection and analysis

An inductive approach was applied where the interview content directed coding and theorizing process (Braun & Clarke, 2006; Ward, Gott, & Hoare, 2015). Generally, there are three steps for data analysis: open coding, selected coding and theoretical coding. Nvivo will be used to support qualitative data analysis process.

4. RESULTS.

In this study, all the conversations were conducted through face-to-face interview with 30-40 minutes. Generally, children’s engagement was the core for a successful and high-quality learning environment, children’s interests and their individual needs as well as characteristics remain to be the prior considerations as teachers design and implement ELE. In addition, teachers in three cities (Beijing, Xi’an, Shenzhen) regarded scaffolding as the main approach to promote children’s participation and interaction with environment. Overall, through interview, 4 themes were identified: 1)active participation; 2)children’s interests; 3)individualized support; 4)scaffolding.

4.1. Theme: active participation

All the participants in this study identified engaging learning environment that promoted active participation as the basic aspect of a high quality learning environment. According to Vygotsky (1978) children’s individual learning and development cannot be separated from social and cultural activities. Thus it is necessary for kindergarten teachers aware the importance of active participation and how to motivate children’s engagement in learning environment (Norling, Sandberg, & Almqvist, 2015). X1 said that, ‘if a certain type of learning environment is regarded as high-quality, it means that children
could grasp the topic and essence of learning environment. Children can become engaged in the environment’. Teachers insisted that it is the key consideration for high quality learning environment. As S4 pointed out, ‘Children can learn, make achievement and interact with peers. And engagement is the core of high quality learning environment’.

Furthermore, participants described engaging learning environment as ‘child-centered’ or ‘child-initiated’, which shifted from the conventional ‘teacher-centered’ or ‘teacher-controlled’ model. Traditionally, teachers preferred to design the environment and control the process of children’s participation and interaction. However, current model revealed a ‘detachment’ between teachers’ perception and practice. S2 stated, ‘Currently, the environmental settings are for children but made by teachers. It is sorts of detachment. So personally, I will try to encourage children to participate, thus promoting their initiative instead of making them passive’.

4.2. Theme: children’s interests
Children’s interests which refer to how much a child likes and enjoy doing tasks related to a particular topic (Viljaranta, Kiuru, Marjakristiina, Silinskas, & Poikkeus, 2016) is another key concern. Interest is an important motivational factor for preschool children’s school readiness (Maniates, 2015) and academic skills (Doctoroff, Fisher, Burrows, & Edman, 2016). As B5 said, ‘I will focus on what they feel interested in. This can be supported by my discussion with children on the arrangement and designing learning environment’.

Generally, teachers unanimously agreed that children’s prior experience and developmental levels contributed to trigger children’s interests. Teacher X2 said, ‘because learning environment is in accordance with seasons and children’s development levels, children can participate and feel engaged. Children feel interested and then they will try even if they have difficulties. This improves children’s other characteristics such as willpower and persistence’. What’s more, learning environment without taking children’s interests into consideration will be less effective. As teacher X1 pointed out, ‘Sometimes even teachers themselves don’t know what is the purpose of designing learning environment. Children just have a glance at it and cannot be attracted’.

4.3. Theme: individualized support
Another emerging theme for ELE is individualized support. It provided a stronger focus and additional practice based on children’s individual needs and skill level (Gettinger & Stoiber, 2012). Based on teachers’ beliefs and attitudes, individual support may be carried out in different forms based on teachers’ general knowledge, experience and children’s differing needs and
characteristics. Like teacher S5 said, ‘first of all, respecting children’s interests and providing individualized support because learning environment is for the children and by the children’.

In addition, individualized support is treated as a main approach to promote children’s engagement in learning environment. However, how to cater for the needs of all the children remains to be an important issue. Teacher B1 stated: If we aim at promoting children’s engagement, children’s characteristics as well as their individual needs are supposed to be taken into consideration. So the environment is differing. Some types of learning environment may make some children engage and some may not. I am not sure about that. (B1)

4.4. Theme: scaffolding
During designing and implementing an engaging learning environment, teachers pointed out that scaffolding is a basic and effective approach. As researchers (Wood, Bruner, & Ross, 1976; Mcgee & Ukrainetz, 2009) stated, scaffolding is the intentional, strategic support provided by teachers to facilitate children to complete a task they could not finish independently. For example, B5 said, ‘When the child nearly gives up and feels depressed, I intervene by an appropriate chance to guild him as a peer’. In order to scaffold appropriately, teachers usually applied hierarchical comments or instructions to enable children to answer the questions, solve their problems or engage in environment. S4 stated:
Scaffolding is essential because we need this approach to support them gradually. Taking posing questions as an example, when a child says underground, we may ask her have you seen any signs in underground and what are their usages? After she has a basic understanding on underground, we can ask her some further questions to deepen her understanding.’

Besides the above themes shared in three cities, there are some differing aspects emerging. First of all, learning environment is more frequently used and well known by teachers in Shenzhen. Teachers in Beijing and Xi’an preferred educational environment instead. This reveals the fundamental difference among three areas. ‘Learning environment’ roots in children’s perspective and emphasizes children as the center of education. However, ‘education environment’ is a broader concept that not only includes child-centered pedagogy, but also embraces teachers control or influence in daily activities in kindergartens. As B4 said, ‘differing from learning environment, educational environment is based on teacher’s perspective. Though the focus is still on children, but teachers’ control or arrangement shouldn’t be ignored’. Secondly, due to the differing preference on learning environment (education environment is preferred in Beijing and Xi’an), teachers in SZ referred learning
environment as settings and activity areas in classroom. As teacher S2 said, ‘learning environment is the environment in whole classroom including the arrangement on walls, on the table, even behind the cabinet. Activity areas are also part of it’. In contrast, teachers in BJ and XA extended it to the whole kindergarten level. As X3 said, ‘learning environment should refer to kindergarten as a whole and all the areas can be used for children’s learning and development’.

Largely based on child-centered pedagogy, teachers in Shenzhen applied ‘game sheet’ as a supportive material to promote children’s engagement which maximizes children’s initiative and participation. Though teachers in three areas all apply scaffolding as a main approach and aim at respect children’s individuality, there are some differing ideas or inclined approaches due to different pedagogical beliefs. Because children’s role is maximized, teachers in Shenzhen focus on the effects of materials. As a medium between teachers and children, materials are arranged to an appropriate structure based on children’s individual needs, interests and their prior experience. Teachers in Beijing and Xi’an overweighted teachers’ control and arrangement even if children’s perspective is considered.

5. DISCUSSION.

This article reports teachers’ perceptions on designing and implementing engaging learning environment in Beijing, Xi’an and Shenzhen. Overall, participants were very positive about the importance of engaging learning environment for children’s learning and development. Additionally, they shared their understandings and confusions which can offer valuable reflections on current research and praxis.

The theme ‘active participation’ and children’s ‘interests’ illustrate the shifts from subjective knowledge from children’ approaches to learning in China’s ECE. In 2011, Ministry of education stated that knowledge based curriculum and activities are forbidden in kindergarten and play is the fundamental activity in early childhood. Thus, children’s approaches to learning such as active participation, interests, persistence and attentiveness should be emphasized in early childhood period instead of knowledge (Li & Feng, 2013). We contend that children’s active participation and interests are the primary concerns for designing and implementing an engaging learning environment which would promote children’s school readiness.

Such a shift reveals child-centered pedagogy is increasingly important in China’s early childhood education. Shenzhen, the most open and westernized city in China, adopts a ‘westernized’ way of designing and implementing learning environment, empowering children in their own activities and
minimize teachers’ role. In contrast, as the kindergartens with the longest history in the most historical cities in China, kindergartens in Beijing and Xi’an are striving to achieve a balance between child-centered pedagogy and teacher-controlling convention.

In addition, teachers in Xi’an points out that officers’ evaluation on environment are overvalue that from children’s perspective, thus resulting formalism on designing learning environment. In other words, whether environment is effective or engaging depends on officers’ judgment rather than children’s. As X2 argued, officers’ judging standard for LE is from adults’ aesthetics and perspectives. For example, sometimes children cannot match different color ‘beautifully’ from adults’ view, so their work will be seen as poor or not satisfying. Such kind of inclination will influence teachers’ perception and their praxis. When designing environment, they will try to make it close to officers’ ideas instead of children’ needs.

6. CONCLUSIONS
In this grounded theory study, participants agreed that children’s active participation is a central standard for learning environment and individualized support and scaffolding are two main approaches that promotes children’s active participation. Given the different stances (child-centered in Shenzhen and teacher controlled in Beijing and Xi’an), we argue that teacher training program should be enriched and a child oriented evaluation mechanism should be highlighted.

REFERENCES


DESIGNING AND IMPLEMENTING ENGAGING LEARNING ENVIRONMENTS: 745 KINDERGARTEN TEACHERS’ PERCEPTIONS IN THREE CHINESE SOCIETIES


ABSTRACT
In the 1990s public education in the state of Victoria, Australia, was 'reformed' along neo-liberal lines. One of the consequences of the was that school principals dealt with reduced funding by ceasing to employ staff in ancillary areas such as student welfare. Consequences were a decline in the proportion of students completing their schooling and a decline in school attendance. In response to this situation the Advocacy Project was initiated in 1999. The key element in the program was the allocation of each student to a teacher-advocate with whom they would have a conversation for twenty minutes each fortnight to discuss whatever was assisting or inhibiting their school engagement and learning. Three consecutive research studies explored the impact of the Advocacy model on attendance, retention, academic achievement, the social and psychological wellbeing of students and the utility of a set of electronic tools in supporting the process. It became clear that not only was the model effective in achieving the above objectives but it made a substantial impact on school culture. Current research, built on the previous findings, is exploring the impact of giving priority to the quality of teacher-student relationships within an Advocacy model.

KEYWORDS: student advocacy, teacher-student relationships, transformation.

1. INTRODUCTION
Until fairly recently, research on school dropout or failure focused on the reasons why individual students do not complete their schooling: e.g. young people drop out or fail because they are not motivated, are not engaged, are not committed, have no self-esteem, have no ambition, have no skills. These factors were then conventionally related to factors outside the school: inadequate family support, poverty, peer pressure, minority status, demands of part-time jobs. More recently it has become apparent that it is as reasonable to talk about ‘problem schools’ or ‘problem classrooms’ as ‘problem students’ (Knight, 1991). Poor motivation, low aspirations, low self esteem and generally negative attitudes may indeed be brought to the school, but they can just as well be produced by school experience. (Wehlage & Rutter, 1986). There are clearly a variety of dimensions of school experience which may produce the outcome of poor engagement and the consequent low retention rates, but to
focus on conventional factors such as school size, curriculum content, school structure and material resources, is to overlook overwhelming evidence that it is the inability of schools to meet the developmental needs of adolescents which is crucial. A model of student advocacy is presented as an approach to addressing this problem.

2. THE CONTEXT
The problem of designing appropriate educational provision for young people belongs within a much larger context, in which many adolescents in both urban and rural communities are seen to be ‘at risk’. The label of ‘at risk students’ is variously interpreted, but in the Australian context it is currently employed to include students whose development into happy and productive members of society is perceived to be problematic. There is an assumption, or at least a hope, that the dangers for these young people and society at large would be minimized if the education system could provide a way of managing the later years of schooling which could engage, motivate and support students, and give them the knowledge and skills to gain immediate employment or proceed to further study.

Two decades ago, it became impossible to avoid the evidence that in public schools in the State of Victoria there was a problem of student engagement in schooling, manifested in declining attendance and retention rates. During the 90s these schools had been dragged, with considerable resistance, into overt acceptance of an economic rationalist ideology. With some significant exceptions, the senior management of secondary schools became accustomed to the notion that the only basis for valuing schooling is its contribution to the GDP. Curriculum came to be valued for its contribution to the employability of students, rarely for its contribution to the intellectual, interpersonal, moral, or aesthetic growth of either students or the wider community. Where once it was conventional, or at least not ridiculous, to talk of students as persons with potential to grow, and the school community as a rich environment for intellectual, emotional and social growth, it became conventional to adopt a rhetoric which describes students as customers, or even as products fashioned to meet the needs of employers. Unsurprisingly, this rhetoric has not produced measurable benefits in the form of higher university entrance scores, lower exit rates and a smoother transition from schooling to employment. Indeed, the nineties saw schools facing a number of challenges for which they were not prepared. Attendance rates were declining and many students were dropping out of school as soon as they could legally do so; evidence was accumulating that such students were at risk of post-school unemployment and associated mental and social problems; teachers and principals were highly stressed and teacher morale was in serious decline; it was becoming clear that the conventional model of education was not compatible with post-compulsory
students’ sense of themselves as young adults; the current teaching model did not allow schools to take advantage of increasing electronic access to curriculum.

3. THE ADVOCACY PROJECT
It is in this context that the Victorian Department of Education funded and introduced the Advocacy Program. Advocacy is here understood as supporting or espousing students. It is student-centered purposeful, positive and systematic, grounded in an understanding that adolescents, whether or not their behaviour is approved by adults, are seeking to live their lives meaningfully.

The Advocacy model as it was formulated had a number of components:

- Regular one on one conversations between a trusted staff member and a student.
- Establishment of an advocate-student relationship in which students feel free to speak about whatever concerns them.
- Discussion of whatever impacts on the student’s engagement and learning.
- Confidentiality.
- Adoption of a student-centred approach which emphasises listening to the student rather than instructing, evaluating, advising, directing and managing.
- Ensuring that the student’s perspective is acknowledged and understood in any conflicts between the student and a teacher or the school administration
- A set of electronic tools designed to assist students and their advocates to reflect on the factors which impact on their wellbeing and school engagement.

The aim of the intervention was to take some of the randomness out of satisfying students' needs for safety and belonging, to ensure that the students in most need of a consistently supportive relationship would get it, and that the teachers capable of providing it would be given the support (and, where necessary, the training) to do so.

4. METHODOLOGY
The research project (1998-2001) was a cooperative venture between the Graduate School of Education at La Trobe University and the Geelong Science and Centre. The Latrobe researchers provided professional development for teacher-advocates and principals and designed a set of questionnaires to support student advocacy. GSAT was responsible for developing these questionnaires as a set of electronic tools.
The original funding enabled a pilot study in three schools, focusing on students in the final three years of high school. Evidence of positive outcomes in the first year (1999) lead to the program being rolled out to 12 schools in 2000 and 140 schools in 2001. Evaluation was carried out independently by Ocean Consulting, collecting both quantitative and qualitative data through questionnaires, interviews and school records. There was the opportunity in one of the schools to match the experimental group with a control group. There was a statistically significant difference between the two groups on attendance, retention and academic achievement as measured by statewide examinations. There was substantial evidence that the program produced the kind of measurable outcomes that the Department and school principals were interested in. (Ocean, 200; Ocean 2001)

In 2001 the Victorian Health Commission funded a research project to determine whether implementation of the advocacy model had an impact on the psychological and social wellbeing of children in the Middle School. This was carried out by the Research Institute for Professional and Vocational Education of Deakin University (2001-2003). Interviews with principals, teachers, parents and students in the 5 participating schools confirmed that the intervention had a positive impact on the social and emotional wellbeing of students. (Henry, Barty, & Tregenza, 2003)

In 2008 funding was granted by the Australian research Council for a study of the utility of the electronic database which had been designed for the original Advocacy Project in 1998. The research grant was sufficient to demonstrate the potential usefulness of the tools and the inadequacy of the ten year old software on which they were constructed. The study also provided further evidence supporting the findings of the previous studies. (Hutchison & McCann, 2015).

5. RESULTS
The three studies provided evidence that, if properly resourced, an advocacy program has the capacity to transform school culture and address the needs of students. Both empirical and anecdotal evidence from the three completed studies point to the capacity of the program to transform school structures and culture, including teachers’ understanding of their role.

- Students involved in the program were shown to be significantly more likely to attend school regularly, to remain at school and to gain significantly better academic results than the control group.
- There was a substantial improvement in students’ attitudes to schooling, study strategies and goal-setting ability.
- There was evidence of the impact of the program on teachers’ sense of their role and the beginnings of a re-definition of teacher identity.
There was evidence of increased wellbeing in middle school students with advocates.

Although the program was set up in a "learning management" framework, it appears that students were more aware and more appreciative of help with wellbeing and welfare than of help with school and study issues.

There was evidence that the model only works when it is properly applied and school structures are adapted to include it. When advocates and students did not meet at least once every three weeks advocates declared advocacy to be pointless and unsatisfying and the students found it unhelpful.

Principals were adamant that to sustain the program schools would have to be given additional funding for teacher release.

6. DISCUSSION

By 2003 there was sufficient empirical evidence and sufficient support from school principals to justify rolling out the program throughout the public education system in Victoria. A select committee had been established in 2001 to investigate student engagement and learning in the post-compulsory years. The committee recommended the introduction of a system of Managed Individual Pathways, and recommended, moreover, that the Advocacy program was a preferred approach to delivering this system. The funding which had supported Advocacy to this point was re-allocated to support the establishment of Managed Individual Pathways in schools. While a handful of schools already familiar with Advocacy handled the new demands by maintaining and expanding their Advocacy programs, the majority of school principals chose to outsource their MIPS program to consultants, a course of action which made less demands on school culture and finances and relieved them of responsibility for outcomes.

Thus, just when the effectiveness of the program had been confirmed and a naïve observer might have imagined it being widely incorporated into school structures, it effectively fell off the radar. A handful of schools have been maintaining the program but, without targeted funding, their limited resources often force them to modify it (e.g. by substituting group advocate-student meetings for the one-on-one interactions which have proved more effective).

More recent attempts at getting funding to explore the effectiveness of the advocacy model have run into two main obstacles. Since we already have empirical evidence that the program is effective, what is the point of evaluating it again? And secondly, philanthropic foundations which might be interested in funding a project targeting disadvantaged youth will not fund a project aimed at changing school structures in a way which is designed to benefit all students.
7. A NEW PROJECT
The promotion of systematic student advocacy as defined in this project is now in the hands of the International Institute for Research into Interpersonal Relationships in Education, a not-for-profit research-focused institute which sees in the Advocacy model a means of transforming the ways in which schooling can be structured in the 21st century.

Our current research endeavour is an action research project aimed at a radical transformation of the way education is provided in Victoria.

There are eight interlinked components in the model we are promoting:

- Regular one-on-one advocate-student conversations, built into the school’s program, and supported by professional development. This requires and facilitates
- Organizational change within the school, in which
- The principal embraces transformational leadership, and which has
- A significant impact on school culture, involving change in teachers’ roles, prioritizing of relationship, and changes to the way curriculum is delivered, which become possible through
- The provision of electronic curriculum, which facilitates
- The development of students into independent learners, the freeing of teachers from much classroom-based teaching and a shift to
- Project based learning, with projects being chosen by the students, monitored and supervised in
- Regular one-on-one advocate-student conversations

Each of these components has been an object of previous research. The radical move in our project is to integrate them all in a single intervention – systematic student advocacy. We are initiating a longitudinal study in three disadvantaged schools. All students in year 7 will be allocated advocates in the first year, they will continue in the program in the following years while each new year 7 cohort will join it. The first group of teacher-advocates will be trained in basic counselling and other advocacy skills prior to the commencement of the program, after which we will adopt a “train the trainer” model. All components of the model will be addressed through targeted professional development of principals and teachers.

The methodology adopted for this project is cooperative action research in three independent longitudinal case studies with a duration of seven years. Principals, teachers, students and parents will participate in the collection and discussion of quantitative and qualitative data. The research activity of data checking, which facilitates the school community’s reflection on the process and impact of the project and provides feedback to the lead researchers, will be
a component of the intervention and is likely to lead in some instances to a modification of the model.
As is conventional in action research, evaluation will be continuous through the documentation of ongoing participant reflective groups. There will be substantial formal evaluation and an associated report in years 4 and 8.

8. DISCUSSION
The Advocacy Program commits resources to encouraging teachers to do what good teachers have always understood to be necessary and have always tried to do. What is significant about it in the current context is that it represents a re-valuing of the pastoral role of teachers after a period in which it was unfashionable or unpoltic to give it any value at all in public schooling. Furthermore, it takes a rather different path from traditional approaches to pastoral care in that it focuses specifically and explicitly not on student wellbeing but on assisting students in their learning. Teachers do not approach students to discuss welfare issues, but to help them reflect on how they are managing the business of being at school. As it turns out, once a trusting relationship has been established, students seize the opportunity to talk about welfare issues, but this is very much their own decision. And they make this choice because they believe they have found someone who respects them, someone who is trustworthy, and someone who will not give up on them. (Claudet 1995; Radwanski, 1987; Fashola & Slavin 1998)
Observations of the fractal nature of organizational structures suggests that the similar dynamics operate at all levels (Wheatley, 1999) This is consistent with our observation that changing the quality of student-teacher interactions through the introduction of Advocacy impacts on the quality of interpersonal interactions throughout the school. This facilitates the maintenance of an effective advocacy program. We suggest that such positive feedback loops will exist between all elements in a school which adequately resources an Advocacy program: between better interpersonal relationships and students taking responsibility for independent learning; between students developing into independent learners and their effective use of electronic curriculum; between the changed classroom behavior of students in an effective advocacy relationship and the ‘management culture’ of the teaching staff. And so on.
In an era of organizational complexity, transformation is possible.

9. CONCLUSION
It is not unusual for education researchers to be frustrated by the inability or unwillingness of education bureaucracies either to acknowledge the implications of their findings or (supposing they do acknowledge them) to take appropriate action. The experience of the lead researchers in the three studies outlined above is that even when they have obtained substantial evidence of
the positive impact of an intervention, their findings are likely to be trumped by politics, inertia and funding priorities. In the present case, there has been a decade of work within a small research community and a handful of schools to demonstrate the impact of a shift in focus from conventional classroom management to student-teacher relationships. Children and adolescents flourish in an environment characterized by safe, trusting relationships between teachers and students.

Research, both local and international, has delivered this bit of information time and again over the past decades. Unfortunately, however uncomfortable individual teachers in Australia may feel in the current assessment-obsessed, control-obsessed culture of schooling, the State educational systems have largely proved immune to change. We like to think that good research is the key to educational transformation. Let’s try again.
Rube Goldberg machines and STEM education: a Brazilian case study

Pedro Z. Caldeira¹, and Ana Paula Bossler²

¹Universidade Federal do Triângulo Mineiro
pedrozanycaldeira@gmail.com
²Universidade Federal do Triângulo Mineiro
paula.bossler@gmail.com

ABSTRACT
In a Media & Education course of a Mathematics and a Natural Sciences undergraduate programmes, two teams of four students had to develop from scratch a Rube Goldberg machine with at least 10 steps that embodied several types of knowledge from at least two natural sciences (for instance, Chemistry and Physics), which included one scientific experiment. Students also needed to explain to their peers in the other team the content knowledge embodied in their machine and the experimental results they obtained from the machine. One team developed a 10-step Rube Goldberg machine that included knowledge from Chemistry and Physics and that ended with a Chemical experiment (an up-side-down glass descends over a candle in the middle of a dish full of water; when the candle was extinguished the oxygen was substituted by water). At first the students of this team could not fully explain the result: they mentioned air pressure differences but did not explain why pressure is involved. The other team developed a 11-step Rube Goldberg machine that included only knowledge from Physics and Mathematics, and as its ninth step showed an experiment (the energy needed to overcome the resistance of gravity). The students failed to explain the experiment. Using the variation theory of learning principles, the lecturer asked students for full scientific explanations to be presented to their classmates three days later. The students, on the occasion, explained the experiment very satisfactorily.

KEYWORDS: Rube Goldberg machine, variation theory of learning, instructional responsibility, discourse responsibility.

1. INTRODUCTION
Designing an engaging learning setting with the help of technology is a rather easy task, especially if several engaged learning indicators are present such as learners’ involvement in a collaborative, authentic and challenging task, learners responsibility over their learning, or teachers and lecturers acting as facilitators, guides, co-learners or co-investigators (Jones, Valdez, Nowakowski, & Rasmussen, 1995; Hung, Tan, & Koh, 2005; Oliver, 2008).
However, if these engaged learning indicators are fully applied, a possible consequence is the development of de-pedagogized school settings, with
strong negative impacts on school achievement (Marton, 2015; Marton, & Pang, 2006). That is why several researchers feel the need to better understand the role teachers and teaching play in student learning and achievement.

2. THEORETICAL FRAMEWORK

Students, in general, should not have the full responsibility for their school learning and achievement, and teachers should not have a mere facilitator or guide role in school settings (Hansson, 2010; Marton, 2015).

While students can have a strong responsibility for their learning (for instance, with the help of engaging learning settings – Jones et al., 1995), teachers should exert their instructional responsibility (Hansson, 2010) to enhance their students’ learning. For instance, in classes where teachers dedicate more time in teacher-lead learning tasks, students achieve higher learning results on mathematics (Hansson, 2010). Moreover, according to the variation theory of learning (Marton, 2015; Marton, & Pang, 2006), students can attain higher achievement if: i. their instructional environment is designed to present them “various patterns of sameness and difference” (Gu, 2011, as cited in Marton, 2015, p. 247) regarding the object of learning (Marton, 2015) and, counterintuitively, ii. students must learn simultaneously two or more things instead of one at a time (Kullberg et al., 2016).

The variation on objects of learning and the induction of students to learning two or more things simultaneously are carried out through teachers’ classroom discourse, namely the questions the teacher asks students and the tasks the teacher demands students to complete (Marton, 2015; Marton, & Tsui, 2004). For instance, asking students questions that requires a Yes or No answer or that require a single recognition of a phenomenon elicits more superficial learning than asking students a Why question or to explain a scientific event, as they need to understand the underlying scientific concepts and knowledge, that elicits a deeper learning (Marton, 2015).

3. METHODOLOGY.

In a Media & Education course of the second year of two Rural Education initial teachers training degree (Natural Sciences – i.e. Biology, Chemistry and Physics – and Mathematics), lecturers aimed to work with students on two major topics: media as information production with instruction purposes and media as information consumption for learning purposes. But the lecturers’ final objective was that students should think media critically and to understand and use media as part of the instruction and understand the impact of the teachers’ classroom discourse on students’ learning and achievement.

The course had a total of 45 hours of classroom work and, in a process of co-teaching, two lecturers were always simultaneously present in the classroom.
To fulfill the course learning objectives, the lecturers asked students to design and assemble a Rube Goldberg machine in small collaborative groups. A Rube Goldberg machine is a sequence of interconnected actions to accomplish a usually simple task in a rather complicated manner (for instance, raise a flag, light a bulb or blow a balloon). The student groups had to comply with the following instructions: the design should be entirely decided by the students’ groups, the machine should be completely functional, the students had the full responsibility of the machines’ assembling, the machine should include at least a science experiment, and the machines must show a sequence of at least 10 interconnected actions. The running of the machines was filmed for further classroom discussion and analysis.

Without explicating it from the beginning, lecturers also wanted to understand how students verbally analyzed and explained the functioning of their machines. Thus, as the activity final step, the lecturers decided to: i. force the students to do more than one learning simultaneously (Kullberg et al., 2016) and, ii. pedagogized the exercise asking students to explain the scientific principles underlying their machine run.

3.1. Study 1 – Designing, assembling and discussing a Rube Goldberg machine

Although the student groups designed and assembled 12 Rube Goldberg machines, only two Rube Goldberg contraptions are analyzed in this paper as it was the only ones that were completed before the last class. The first group had two students of the Natural Sciences degree programme and two students of the Mathematics one and the second group had four students of the Natural Sciences programme. The students’ original ideas and designs were completed in one weekend and both groups needed two more days to finish assembling the machine. The running of the machines was filmed less than one week after the exercise was delivered.

3.1.1. Machine’s functioning description (follow the arrows – see Figure 1 – the first group machine) (Online at https://www.youtube.com/watch?v=JYZ4F8_wSAo (Brazilian extended version) and https://www.youtube.com/watch?v=SJ05zw857W8&feature=youtu.be (English-speaking short version)

The machine of the first group starts at A, where a rolling marble is released and descends on several slightly inclined planes to point B. Here the marble takes down the first piece of a domino, which in a cascade effect loosens a lever in C. The lever again releases another marble in D, which descends through another inclined plane, triggering at the end (E) another lever that throws a third marble upwards, activating a third lever in F. This lever releases
a string attached to a falling weight that stamps a paper in G (this machine goal).

3.1.2. Machine’s functioning description (see Figure 2 – second group machine) (Online at https://www.youtube.com/watch?v=x9jYV6Ul8s&start=5s.)

The machine of the second group starts with a thrust on a mini-truck with a burning candle on top. The candle burns a string that releases another mini-truck placed at the top of an inclined plane. The second mini-truck runs into a lever disengaging a marble that descends inside of an inclined tube. At the end of the tube, the marble collides with a pen that releases another marble in an inclined plane. This marble starts a domino chain reaction that ends when a glass falls over a burning candle placed in the middle of a plate filled with water. When the candle flame consumes all the oxygen, the water starts to fill the glass (a very common Chemical experiment – the goal of this machine).
Right after filming the machine running, one lecturer debriefed the exercise with the groups, one at a time, asking students to indicate the scientific and mathematical knowledge included in the different machine components.

3.1.3. Study 1 – Results
The students of the first group did not explain the machines’ design and functioning using scientific concepts and terms, except the one related to gravity (gravity tout court, without even linking the words gravity and force). They use common-sense language and language they remembered from the high school to explain the scientific knowledge included in some machine components: action-reaction, fall out, chain effect or thrust. They recognized less than half of the Physics phenomena and none of the Mathematical principles included in their Rube Goldberg machine. For instance, they did not recognize concepts like: stability, equilibrium point, forces, gravitational force, gravitational field, balancing forces, impulse, potential energy, kinetic energy, friction, energy needed to overcome the resistance of gravity, geometry, inclined plane force components, segment slope, chain reaction / cascade effect, or causality.
Likewise, the students of the second group also did not explain the machines’ design and functioning using scientific concepts and terms, but they recognized the experiment included in the machine run. They tried to explain the experiment, but using only pressure to describe why the water started to fill the glass.

3.2. Study 2 – Explaining the Rube Goldberg machine to the lecturer and to the classmates
As students did not explain their machines running using proper scientific and mathematical concepts and terms, lecturers decided to run a second study. Therefore, one week later the same lecturer that debriefed the exercise had semi-structured interviews with the two groups, challenging the students to present to their classmates all the scientific principles included in the machine’s running, thus introducing a variation into the object of learning:
The lecturer also stressed the need that students should name the scientific and mathematical phenomena and principles underlying the machine run, with the care to apply the appropriate scientific and mathematical terms, thus promoting the learning of two things simultaneously.
With this approach, the lecturer shifts the object of learning from the mere recognition of scientific phenomena and mathematical principles to the explanation of these same scientific phenomena and mathematical principles, compelling students to apply a more proper vocabulary and thus promoting a deeper learning of scientific and mathematical knowledge. Applying appropriately scientific phenomena and mathematical principles are considered
to have a positive impact on learning (Moje, 1995), as students “progress faster and further if they are appropriately equipped linguistically.” (p. 7)

3.2.1. Study 2 – Results
The students planned independently the presentation to their classmates. Their main goals were to stress the scientific and mathematical knowledge included in the machine run and to apply the appropriate vocabulary to explain the different machine’s components.

The second group did not finish the task, but the students explained more correctly to the lecturer the scientific phenomena included in the experiment: the pressure difference inside and outside the glass causes water to fill the volume previously occupied by oxygen prior to burning completely.

3.2.2. Physical phenomena underlined in the students’ presentation (first group)
The students indicated almost 90% of the Physics phenomena and general principles included in the machine running, but they failed to present the details of these principles. For instance, they explained the gravitational force as the driving force that puts the marble in motion, but they do not consider the friction as the explaining principle of the marble complete stop in several filmed trials. Students identified most of the Physics phenomena included in the machine run, namely: stability, equilibrium point, forces, gravitational force, balancing forces or impulse. But they did not comment on gravitational field, potential energy, kinetic energy, friction, or causality. This time they missed applying the appropriate scientific vocabulary only on two occasions: instead of applying the expressions ‘chain reaction’ or ‘cascade effect’ to the domino effect they used the expression ‘chain effect’ (a fitness term); they also failed to apply the expression ‘force needed to overcome the resistance of gravity’ when the marble is thrown upwards in C (see Figure 3).

Figure 3: The students’ scientific and mathematical explanations of their Rube Goldberg machine’s running.
3.2.3. Mathematical principles underlined in the students’ explanation (first group)
Students identified mainly two mathematical principles included in the machine run: geometry, namely geometric figures present in the machine structure (mainly triangles and rectangles – marked with an A), and the slope of a segment, represented by the hypotenuse (marked with a B – that they successfully related with inclined plane force components), needed to the marble gaining speed to activate the lever that throws another marble upwards (marked with a C).

4. RESULTS
The results of the two studies are presented in Table 1.

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Table 1: Results of the Study 1 and Study 2.

These results reveal that: i. students identified more scientific phenomena and mathematical principles in study 2 and ii. they also acquired and applied more correctly and extensively the appropriate vocabulary in study 2.

5. IMPLICATIONS/DISCUSSION.
Inducing students to approach differently the machine’s running had a positive impact on their learning: The students of the first group jumped from a recognition of about 40% of the Physics phenomena and none of the Mathematics principles included in the machine’s functioning on Study 1 to a recognition and explanation of about 90% of the Physics phenomena, and two Mathematics principles on Study 2. The students of the second group, which did not complete the task by failing to explain the machine’s running to their classmates, described only 25% of the Chemical phenomena in Study 1 and 50% in Study 2, using the appropriate scientific terms.

Therefore, as Marton expected (2015; Marton, & Pang, 2006), asking students to present and explain to their classmates the scientific phenomena and mathematical principles underlying the functioning of the machine induced a variation on the object of learning and allowed them to better understand how
the machine works and to relate components of the machine’s running with scientific and mathematical phenomena and knowledge. And more, as experimental research had already shown (Kullberg et al., 2016), encouraging students to learn two things simultaneously have a positive impact on student learning: Understanding the scientific and mathematical knowledge underlying the machine’s functioning and explaining it to their classmates applying appropriate vocabulary promoted students’ learning. The final class discussion about the use of Rube Goldberg contraptions with instructional and learning objectives emphasized that designing, assembling and analyzing Rube Goldberg machines may contribute simultaneously to more engaging learning settings and to improve student learning.

6. CONCLUSIONS

The design, assembly, and analysis of a Rube Goldberg machine in small collaborative groups is a powerful way to promote simultaneously an engaged learning setting, a variation on the object of learning and inducing the learning of two or more things at once, thus improving student learning and achievement, provided there is an adequate pedagogized environment where the teacher leads the students' learning (teachers’ instructional responsibility – Hansson, 2010). Shifting the object of learning from simple recognition of scientific phenomena and mathematical principles to the explanation to the classmates of these phenomena and principles has a very positive impact on student learning: They go from simple recognition to the understanding of the Physical and Chemical phenomena and the Mathematics principles previously identified. Therefore, besides an instructional responsibility to promote a teaching-lead learning environment, improving student learning, teachers also have a discourse responsibility to provide pedagogized school settings supporting one or more variations on the object of learning (Marton, 2015; Marton, & Pang, 2006) and encouraging the learning of several things at once (Kullberg et al., 2016;) thus promoting the student learning and achievement.

REFERENCES


If two-thirds of classroom talk is still by the teacher: the kind of science teacher’s talk and use of language during teaching for all learners in any science classroom

Samuel Ouma Oyoo

University of the Witwatersrand, Johannesburg, South Africa

samuel.oyoo@wits.ac.za

ABSTRACT:
The classroom of today more than of yesterday is getting more and more culturally and linguistically diverse. The classroom of tomorrow will be even more diverse in these same two terms. The instructional language that is being used most in many classrooms across the world today is English. This of course, is despite the on-going debates on whether learner home languages would instead be most appropriate for enhanced learning in classrooms as well as the current absence of a benchmark on the level of proficiency in any language of learning and teaching that would guarantee successful learning. This article presents approaches on how science teachers can be assisted [during initial and continuing education of teachers] to use whichever is the language of learning and teaching to bring about more meaningful learning in classrooms. It draws from findings in an investigation of science teachers’ approaches to use and conceptions of when the instructional language as used in science classrooms and science texts becomes a factor of the difficulty of science. Direct classroom observations of three lessons by each of the nine participant teachers followed by face to face interviews and content analyses of their verbatim classroom talk were used as the methods of data collection. The analysis of the data was based on a perspective on language as words and language as knowledge.

KEYWORDS: Learning and teaching science; Language; Initial education of teachers; Continuing education of teacher educators

1. INTRODUCTION
The classroom of today more than of yesterday is getting more and more diverse, both culturally and linguistically. The classroom of tomorrow will be even more diverse in these same two terms. The instructional language that is being used most in many classrooms across the world today is English. The role of language in the formation and development of concepts is now well established; the purpose of science teachers’ classroom talk has also been well described (Scott, 1998). Similar to Ned Flanders (1970), research across a wide range of teachers and countries has been consistent on the observation that the greater percentage of talk in many classrooms including those of science comprises that of the teacher (Mortimer & Scott, 2003). This common
observation that teacher talk dominates in classrooms is a strong suggestion that the kind of language in the teacher’s classroom talk that can bring about meaningful learning in science classrooms that are getting more and more culturally and linguistically diverse need be described. This article draws from findings in an investigation of science teachers’ approaches to use and conceptions of when the instructional language as used in science classrooms and science texts becomes a factor of the difficulty of science. It presents approaches on how science teachers can be assisted to use whichever is the language of learning and teaching to bring about more meaningful learning in classrooms.

Studies of teaching that focus on the nature or true identity of the science classroom instructional language and as used by the teachers to facilitate learning in classrooms are still not common (Fensham, 2004). This article, in this regard, becomes a contribution towards filling the existing void in the literature on teacher talk and use of instructional language to facilitate science learning. This article also adds a perspective to the kind of attention that should be given to language issues in the teaching and learning of science including by teacher educators.

2. THEORETICAL FRAMEWORK

An examination of the science classroom language reveals that it can be divided into two broad parts namely: the technical component and the non-technical component. The technical component comprises of technical words which are specific to a science subject or discipline; photosynthesis, respiration and genes for example are words generally associated with Biology; momentum, capacitance and voltage are words generally associated with Physics; atoms, elements, and cations are words most commonly used in Chemistry. As evident from these examples, these words give identity to particular subjects and/or the science discipline. Everyday words when used in science become science words and attain new meanings (become polysemous). Teaching science is about facilitating learner knowledge of the meanings of these words. It is the reason learning science has been referred to as learning a new language.

The non-technical component of the science classroom language on the other hand is made up of non-technical words, high frequency words (Nagy & Townsend, 2012) which define or give identity to the particular instructional language or the language of a science text. This is to the extent that we are able to tell which instructional language is in use, whether the language is English or any other. Although all words in the non-technical component of the science classroom language are non-technical words, in literature relevant to research in language in science education, three categories within have been derived, to include, logical connectives, metarepresentational terms, and non-technical words used in the
science context. Distinctions between these three categories of non-technical words are available in science education research literature. Together with the category of words already referred to as technical words/terms, the science classroom language is made up of four categories of words - science words, logical connectives, metarepresentational terms and non-technical words in the science context.

Research has revealed that all these categories of words present difficulties to science learners, thus the science classroom language is generally difficult. The difficulty of science words or ‘hard’ science words is well-known; this is explained here on their general foreignness. Foreignness of the science words is because of their unfamiliarity, the subculture they represent or because of their new meanings (polysemy) when used in science is a basis for the difficulty of the technical words even to students whose home language is the classroom instructional language. Learners who will excel in science therefore need, to be capable of handling science concepts in addition to possession of basic proficiency in the instructional language.

Difficulty of the non-technical component of the science classroom language: The difficulties encountered with the logical connectives (Gardner, 1977) and metarepresentational terms can be traced to the relative student levels of general proficiency in the instructional language (Oyoo, 2016). The challenges students have consistently been reported to encounter with the ‘non-technical words when used in the science context’ category (Childs, Markic & Ryan, 2015) can, in addition to learner relative levels of proficiency in the instructional language, be explained on the changed meanings of these words when used in a science context, e.g. ‘reaction’, ‘decay’, ‘disintegrate’.

3. METHODOLOGY

The study reported in this article was conducted at six public secondary schools across Kenya to explore science teachers’ approaches to use of instructional language during teaching as a means to accessing their conceptions of when the instructional language typical of science classrooms and science texts becomes a factor of the difficulty of science. Also investigated were any adjustments to practice so as to help learners around any potential difficulties. Nine physics teacher, only two being female, participated in the study; they had teaching experiences that ranged from two to 23 years. Each teacher represented a Case, a unit of study or an example of practice, making the whole study to be comprised of nine case studies; this was because the background and teaching circumstances of all the participant teachers
varied depending on schooling backgrounds, teaching experience and types of schools where they served.

Data Collection: Direct classroom observations and interviews with physics teachers were conducted. The purposes of the direct classroom observations were to lead to a contextual description of each teacher’s classroom activities especially approaches to classroom talk and use of language during teaching. The aim of teacher interviews on the other hand was to source data to help in understanding issues (specific to the circumstances of each teacher, and the context in each particular school involved in the study) relevant to the stated aim of the study. It was anticipated that some specific issues would arise from the classroom observations. The essential focus in teacher interviews was whether the teachers were conscious of the potential of their approaches to use of language during teaching, to cause students’ learning difficulties. One important focus was on whether teachers were aware of functional value of non-technical words in the school physics register.

Data Analysis: The verbatim transcripts of teachers’ classroom talk and of the interview responses were thematically analysed. Qualitative content analysis was also used to provide for triangulation, to enable decisions on teachers’ preferred approach to language use during teaching.

4. RESULTS AND DISCUSSIONS

4.1 Teachers’ general approach to use of language in classrooms

Generally, there were explicit and implicit references to the words, and apart from the technical terms, the everyday words special to the register of school physics in the topics covered were used. In all of the lessons observed, the teachers did most of the talking (Mercer & Dawes, 2014) and the students in most instances, talked only when they were expected to respond to teachers’ questions.

4.2 Explanations of meanings of non-technical words used in the science context

In instances where the teachers provided the meanings of the words in the context of use, different approaches to explaining the meanings of certain non-technical words to the students were used. Salient among these included being precise with word meanings or avoidance of ambiguity in word use, teachers using simple language in the classrooms, and teachers announcing at the end of a lesson, difficult words expected in the lessons to follow so that students could look for their meanings in advance. One participant teacher, coincidentally, the most experienced of the nine, stood out in clear favour of making word meanings accessible by using examples from the students’ immediate environment, including examples from the students’ dominant local culture. The way this teacher provided meanings of the key words of her lesson
including in the local language of the students gave both cultural and linguistic access to the meaning of the words (Cleghorn, Merritt & Abagi, 1989). The circumstances which she drew from also may have contributed to a better understanding of the words in the context of use. The dominant approach by this teacher of relating meanings of everyday words to the context of the students’ life situations could have made the abstract items of the lesson easier to grasp.

The frequency of explanations given by the teachers apparently depended on length of teaching experience, with those new to the profession explaining the least. The teachers who were newer to the profession (fewer years of service) still tended to operate in very abstract terms. In other words, their general approaches did not include moulding the content in the physics course book to make it more understandable to their students – they in effect taught textbook physics. This made it apparent that the relative ease with which the teachers gave explanations of any words they used in their teaching as well as the quality of explanations given, seemed to depend on their relative mastery of the subject matter content in the school physics curriculum.

4.3 Teachers’ attention to meanings of metarepresentational terms during teaching

In almost all cases where metarepresentational terms (metacognitive and metalinguistic words) were used by the participant teachers during the lessons observed, these were exclusively when numerical questions (problems) were being solved; their meanings were generally only minimally explained by most teacher participants. The tendency was however also observed with the two teacher participants who offered most explanations of the meanings of the words used during their teaching. One of these two teachers, T8 for example used the word ‘compute’ without offering its function when the students were asked to solve an equation to arrive at their estimated value of the height of the molecule: ‘Let’s not have you switching off because of maths. That one just compute it, the value is going to be a very tiny one.’ (T8)

It is noted that most participant teachers had observed during the respective individual interviews that their students lacked understanding of word problems (questions) and were also often unable to interpret word questions. Non-explanation of the meanings of the metarepresentational terms e.g. *explain, distinguish* etc. as was evidently the general approach by the participant teachers may have been one factor of the difficulty of the word problems.
4.4 Teachers’ conception of the value of everyday words used

The teachers who participated in the research generally seemed to view students’ difficulties in learning physics to stem only from the difficulty of the subject and not from difficulties encountered with the contextual meanings of the non-technical words when used in the science context. Particular evidence could be in one participant teacher’s response regarding the role of language in students’ understanding of physics.

Researcher: Do you think that it [the students’ language problems] can be classed as a factor in making the students not to like physics?
Participant teacher: In physics there are not too many terms like in biology and chemistry, yet they find physics to be difficult. Can it be a major factor? I doubt whether it is a major factor because there are some subjects where terms are so new but still they like it.

While this participant teacher went ahead to argue that mathematics was the major factor in the difficulty of physics, his response as above revealed his idea of the place of non-technical words in students’ enhanced understanding of the science concepts. Most participant teachers seemed to share this view hence of the role of these words in meaning making and concept formation, making it apparent that they did not think that some of these words embody science concepts and would hamper learning of the concepts if not explained in the context of use. Another indicator of participant teachers’ apparent lack of awareness of the importance of the non-technical words to learning was in the following suggestion by another participant teacher:

Participant teacher: The students know most of the words in English and some of these need not be explained to them. Some words like ‘illustrate’, ‘define’; they will come to know after being taught for two or three years.

This view about approach to language use would potentially make the students to encounter difficulties in learning physics, hence can be taken to be unhelpful in facilitating students’ understanding of the science classroom language and therefore of science concepts.

4.5 Explaining teachers’ approaches to and opinions on use of language

Interviews with teachers helped to shed light on these observations and opinions. The trend of not giving explanations of word meanings in the context of use was mainly because the need to be particular about the meanings of such words in the register of school physics and common in language of instruction as used during teaching was not stressed during their initial preparation as science teachers. In instances where teachers gave explanations, the reasons they gave revealed that they had been influenced by perceived levels of proficiency of their students in the language of instruction,
general academic abilities and aptitude for science as well as the their conceptions of the difficulty of the science concepts. Peer influence, i.e., influence of other colleagues was also mentioned to have made some teachers to see the importance of giving explanations of meanings.

5. CONCLUSION
This study has revealed that the secondary school science teachers need to attend more to the nature of the instructional language of the science classroom. The following two recommendations suggested by the findings in this study can be stated as means to ensuring the teachers’ language use will be suitable to all science learners: 1) A need for mentoring of novice science teachers on language issues in teaching and learning science, for teachers to adopt reflective practice/action research, and for teachers to enrol as members of subject associations. 2) The curricula used at initial and continuing education of physics/science teachers need to be restructured to incorporate issues on language use in learning science.

REFERENCES


When attention to proficiency in, context of use and precision in use, and polysemy [nature of the science language] counts best during science teaching

Samuel Ouma Oyoo

University of the Witwatersrand, Johannesburg, South Africa

samuel.oyoo@wits.ac.za

ABSTRACT:
This paper draws from an exploratory study of the difficulties South African High School physical science learners encounter with everyday English words when presented in the science context. Data were obtained from participants [1170 learners and 35 respective physical science teachers/educators from 35 public secondary schools in Johannesburg area of South Africa] through a word test to participant learners followed by group interviews but one-on-one interviews with respective physical science educators. Findings have revealed that South African learners also face difficulties with meanings of everyday words presented in science context. While the main source of difficulties encountered was learner inability to distinguish between the meanings of familiar everyday words as used in everyday parlance from the ‘new’ meanings of the same everyday words when used in the science context, fewer difficulties will be experienced by learners if science educators 1) take to being more precise in their talk and use of language, and/or 2) generally explain the nature and context meanings of all the words used during teaching. The findings thus suggest that focusing on precise use of language as well as contextual proficiency more than on general proficiency in the language of learning and teaching (LOLT) during teaching perhaps holds more promise for enhanced learning and achievement in science. Steps necessary to raise teacher awareness of the potential impact of attention to precise use of language, nature and context meanings of everyday words of the LOLT science are discussed.

KEY WORDS: Science classrooms; Language proficiency; Contextual of use; Polysemy; South Africa

1. INTRODUCTION
The words of the science classroom or science texts that have meanings specific to a science subject or discipline, and which by association, seem to give identity to particular subjects and/or the science discipline are referred to as ‘technical words’, science concepts or science terminology. Examples include photosynthesis, respiration and genes in Biology; capacitance and voltage in Physics and atoms, elements, and cations in Chemistry (Oyoo, 2012). In essence, learning science is learning the science meanings of these technical terms that include everyday words used as science concepts and which used thus, become
polysemous in nature. The language of the science classroom or science texts also consists of non-technical words. The non-technical words define or give identity to the particular language of learning and teaching [LOLT] in use in a classroom or the language of a science text; this is to the extent that we are able to tell which language is in use, e.g. whether the language is Spanish or any other. Non-technical words of the language used during science teaching and in science texts have been argued to exist in three categories: logical connectives, metarepresentational terms, and non-technical words used in the science context. The distinction between these three categories of non-technical words as well as their functional value has been well presented in relevant research literature.

2. THEORETICAL FRAMEWORK

Language has long been recognised as a tool that facilitates communication between the teacher and the learners during teaching including in science education. Scott (1998) has provided a deep analysis of the purposes of language as talk, used by the science teachers as the knowledgeable others, during teaching; it reveals that a high level of learner proficiency in the medium of instruction is key factor when it comes to learners’ recognition of the language of the science classrooms including the polysemous science words. Proficiency in the LOLT may however not be the only factor of successful learning and retention of scientific concepts. Learners with the “attendant ability to handle the [science] concepts” (Achebe 1990, p. 162) also need to understand the meanings of everyday words in the context of use if they are learn science easily. The main focus of this article is on learner understandings of the non-technical words used in the science context as a means to highlight the need for precision in talk and use of language during science learning.

The place of context in meaning recognition is evidenced in the way every day words e.g. ‘reaction’, ‘diversity’, ‘disintegrate’ and ‘decay’ mean differently when used in the science context, to their everyday use. As in the Macmillan English dictionary (2002, pp. 395 - 1172),

... the meaning of the word ‘reaction’ in everyday English refers to the way one feels or behaves as a result of something that happens; diversity refers to the fact that very different people or things exist within a group or place, while the everyday meaning of disintegrate is to be completely destroyed by breaking into lots of very small pieces.

The word ‘reaction’ as found in Physics makes it a technical term – a force. In Chemistry, ‘reaction’ is used to describe what happens when two or more substances are mixed. The word ‘diversity’, as commonly used in Biology refers to the various types of species such as plants and animals while the word ‘disintegrate’ as used in Physics is often in reference to the ‘decay’ of an unstable
nucleus. How the word ‘disintegrate’ is used in physics gives meanings to the words ‘decay’ and ‘unstable nucleus’. As relevant to the science context, ‘disintegrate’ means a reorganisation of the sub-atomic particles in the nucleus of an atom instead of the ‘breaking of the nucleus into lots of small pieces’ as the English meaning. Similarly, the word ‘decay’ does not refer to ‘rotting’ or ‘decomposition’ of the nucleus but to ‘birth’ of a [daughter] nucleus but whose properties are ‘very different’ from those of the [parent] nucleus.

The way the meanings of words ‘diversity’, ‘reaction’, ‘disintegrate’ and ‘decay’ change with the context of use is one reason why difficulties are encountered with everyday words when presented in the science context.

The transformation of meanings of everyday words when used in the science context is taken here as a source of difficulties that may be encountered with everyday words when used in the science context for the simple reason that contextual difficulties can be encountered only by those with some proficiency in a LOLT. Difficulties with the meanings of non-technical words in the main can therefore be explained on failure to recognize that “every day words cease to be mere English words when used in a science context” (Marshall & Gilmour 1991, p. 334).

The foregoing has served to define the place of context and by implication, the need for precision in use in the ease with which the meanings of everyday words presented in the science context may be told. Thus while general proficiency i.e. possession of basic language competence is a necessary first requirement for any learning in any language, learning science in a language may be successful depending on learner ability in science, being able to detect polysemy as well as to tell the meanings of everyday words in the context of use.

**Conceptual framework:** In line with these discussions, the conceptual framework on how words make sense including in the science context/zone conforms to the following assertion by Vygotsky (1986, p. 244), the fact that

...the sense [meaning] is ... the sum of all the psychological events aroused in our consciousness by the word. It is a dynamic, fluid, complex whole, which has several zones of unequal stability. Meaning is only one of the zones of sense, the most stable and precise zone. A word acquires its sense from the context in which it appears; in different contexts, it changes its sense [meaning].

Vygotsky (1986, p. 244)

This assertion is also applicable to helping learners resolve polysemy when everyday words have been used as technical words or science terminology i.e. science terms, e.g. *force, power, pressure, resistance, work*, etc.
3. METHODOLOGY

The research reported in this article was conducted in South Africa, a country with 11 official languages but school learning being conducted almost exclusively in two languages, English or Afrikaans. Any learning difficulties observed in South African science learners who use a language other than their home language are still generally assumed to stem almost exclusively from such learners’ perceived lower levels of proficiency in the LOLT. This study was to moderate the widespread assumption about the place of general proficiency in a LOLT for all learning. It was an investigation of South African learners’ difficulties with the language of learning and teaching via an exploration of Grade 12 physical science learners’ difficulties with everyday words when presented in a science context. The study also investigated reasons for and whether participant teachers could also be contributors to any learner difficulties with everyday words presented in the science context. The research questions that guided the study were the following:

1. Do South African grade 12 physical science learners also encounter difficulties with everyday words when used in science context?
2. What are the sources of the difficulty of the words?
3. What roles do the teachers possibly play in the difficulties learners encounter with the language of teaching and learning science?

3.1. Data Sources
A total of 1170 physical science learners all Grade 12 drawn from 35 public secondary schools in Johannesburg area participated in the study. All were English second language learners but were considered highly proficient in English, the LOLT. A physical science teacher from each school making a total of 35, all male, participated. All the participant teachers were well qualified to teach physical science at secondary school level and had taught physical science for at least 5 years.

Data were collected using a questionnaire/word test to participant learners only and was followed by semi-structured interviews with the learners (in small groups) but face to face with each participant teacher. Both the interviews with the learners and the teachers were audiotaped and later transcribed verbatim. Content analyses of both the learner and teacher verbatim interview transcripts were conducted to access more data from both learner participants and their respective physical science teachers’ responses. The questionnaire comprised of 30 multiple choice questions with the target word underlined like for the word sensitive:
The beam balance is a very sensitive instrument. This means that it
A. can be used to weigh very small things
B. can be used only by sensible people
C. is hard to understand how it works
D. gets spoilt very easily

3.2 Data Analysis Approach

The questionnaire responses were first marked then mean scores analysed for patterns and trends to arrive at conclusions as answers to the first two main research questions. In South Africa, 30% is the pass mark in any subject in all grades including in the National Senior Certificate Examination. Similarly in this study, if less than 30% of the learner participants (Grade 12 learners) didn’t know the contextual meaning of the everyday word used in science context, the word was considered to be difficult. Relative difficulty between the words was judged on the respective mean scores attained per item. The analyses of the interview responses on the other hand were done using an interpretive approach but based on the conceptual framework adopted for telling meanings/sense of words/concepts used in a language as already discussed.

4. RESULTS AND DISCUSSION

4.1 Difficulty of the non-technical words to the participant learners

This study has demonstrated that South African Grade 12 physical science learners also encounter difficulties with everyday words when presented in the science context. The following seven words in a descending order emerged as difficult: sensitive, spontaneous, retard, trace, contract, convention and disintegrate. In all studies this far, the word ‘spontaneous’ has been enduring as the most difficult word.

4.2 Why non-technical words are difficult

The word that emerged as the most difficult in this study – ‘Sensitive’, is used as representative of the typical learner and teacher interview responses obtained in the study as the reasons for the difficulty of everyday words presented in the science context.

Sensitive: The word ‘Sensitive’ appeared in the questionnaire as already been presented in this article. Although all the participant learners mentioned that
the word ‘sensitive’ was familiar to them, only 24% of them knew the meaning of the word in the context as expected in the questionnaire: *can be used to weigh very small things* (A). Most of the learners took the word ‘sensitive’ to refer to fragile or ‘to spoil something easily’ (D). A typical response obtained during the interviews with the learners across the schools pointed to how the learner participants arrived at their preferred but wrong answer D (gets spoilt very easily). The participant the learners seemed to have arrived at the option D based on the argument that

“If you are a sensitive person it means you can easily get angry; you are very fragile so other people should handle you with care because your emotions can easily be spoilt.”

Thus the participant learners who missed the correct meaning in the context of use appeared to have been misled by their common everyday use of the word sensitive. In other words, the outside of school contexts in which they had encountered the word had been a particularly strong influence. This is a source of difficulty not directly related to any lack of adequate proficiency in the language used in the questionnaire. The encountered difficulty with this word most evidently stemmed from a failure to detect the correct context.

4.3 Participant Teachers’ unawareness of value of words of LOLT

To the participant teachers, non-technical words when presented in the science context, including the word ‘sensitive’ were taken as simple English words, incapable of presenting any difficulties to their learners. The participant teachers also saw no difference between non-technical words used in the science context and technical words/science words: the everyday words presented in the science context also have meanings that are special to the science context in the same way as the technical words e.g. ‘work’ and ‘power’.

Researcher: … Do you explain the meanings of everyday words when used in science context to your learners?  
Teacher… yes …We start from everyday meanings… when … looking at ‘power’, what ‘power’ would mean eeh … in the streets and then we get into the scientific or technical meaning of the word … There are certain words which we just take for granted… we assume umm… that learners understand and we are communicating…. [Italics used for emphasis]

Such revelations indicate that the participant teachers’ lacked awareness of the functional value of the non-technical words presented in the science context as well as their potential difficulty. This gap in teacher knowledge about functional value and nature of the words in the LOLT makes them to be
imprecise in word usage and therefore unhelpful to learners’ accessing of meanings of everyday words presented in the science context.

5. CONCLUSION

The results from this study have revealed that participant Grade 12 learners faced difficulties with meanings of everyday words when used in science context in a similar manner as has been reported in all known studies this far in this area (Oyoo, 2012). The dominant sources of difficulty with the word meanings were 1) the influence of how they had encountered these words in outside of school/science classroom experiences and 2) the participant teachers’ lack of awareness that everyday words presented in the science context could be misunderstood by the learners. The participant teachers’ ability to explain meanings of technical words or science words such as ‘work’ and ‘power’ however helped learners to resolve any difficulties with the polysemous meanings of everyday words used as science terms. The admission by the participant South African teachers that ‘this study was actually an eye opener’ can be accepted to indicate that science teachers need be placed to recognise in their daily work, that the context in which a word is used during teaching affects its comprehension. Thus being always precise in use of language during teaching will facilitate access of correct meanings in the context of use and resolution of any difficulties with polysemy. Based on literature accessed for this article and the findings in this study, it has now become possible to affirm that: Proficiency in the language of instruction, though a prerequisite for any understanding in any LOLT, may be just one factor of the difficulty of the science classroom language, or, for this study, of non-technical words when presented in the science context. In South Africa, as may need be the case in all science learning contexts, this article serves as a recommendation that physical science teachers should be encouraged to recognise that if the meanings of non-technical words are shared with the learners during all use, there will be more successful learning of science. Since the teachers who participated in this study were appropriately qualified and were of appreciable lengths of service, this detected teacher unawareness will be attended to at initial teacher education stage and during continuing professional development of teachers and teacher educators (Korthagen, 2017).
REFERENCES


Innovative field experiences in teacher education: An evaluation of sequential and parallel teaching by student teachers, mentors and pupils

Mathea Simons¹, and Marlies Baeten²

¹University of Antwerp (Belgium), Antwerp School of Education
mathea.simons@uantwerpen.be
²University College Leuven - Limburg (Belgium)
marlies.baeten@ucll.be

ABSTRACT
Teacher education institutes show a growing interest in field experiences inspired by collaborative learning, such as team teaching (Gardiner & Robinson, 2009). Team teaching refers to “two or more teachers in some level of collaboration in the planning, delivery, and/or evaluation of a course” (Authors, 2014, p. 93). Based on the level of collaboration, five teaching models can be distinguished. Research comparing these models is scarce (Carpenter et al., 2007). This study investigates two teaching models: sequential and parallel teaching. In sequential teaching, the teachers divide the learning content and teach alternately (Dugan & Letterman, 2008). In parallel teaching, they divide the class group and teach the same content to subgroups (Graziano & Navarette, 2012). Participants were 14 student teachers with a Master’s degree. They applied sequential or parallel teaching during field experiences. Their experiences were investigated by means of a questionnaire. Their mentors (N=7) were interviewed individually and the pupils in the classroom (N=229) answered a questionnaire. Student teachers recognized advantages and disadvantages of both models. The teaching models provided support, increased dialogue and decreased workload and professional growth. Student teachers encountered difficulties with interdependence and complex management. Mentors reported more advantages while guiding sequential teaching, whereas pupils experienced most advantages from parallel teaching. The results suggest to combine both models during field experiences, without preferring one above the other.

KEYWORDS: team teaching, sequential teaching, parallel teaching, student teachers.

1. INTRODUCTION
During field experiences, student teachers are typically placed individually with a mentor (Sorensen, 2014), i.e. the teachers in whose classrooms the internship is conducted. Nevertheless, collaboration between teachers gains importance and is considered significant for their professional development (Meirink et al., 2007). This forges teacher education institutes to rethink field experiences. A
paired placement, during which a mentor is shared, is suggested to be a good alternative (Birrell & Bullough, 2005). By hosting student teachers in pairs, team teaching opportunities arise. Team teaching refers to “two or more teachers in some level of collaboration in the planning, delivery, and/or evaluation of a course” (Authors, 2014, p. 93). By sharing ideas and giving advice, they learn from each other and achieve more than separately (Gardiner, 2010). A recent literature review (Authors, 2014) showed that, despite the existence of different team teaching models, comparative research is limited. Therefore the present paper aims to offer deeper insight into two models that provide an equal status to both teachers: sequential teaching and parallel teaching. In sequential teaching, teachers divide the learning content. They teach the same lesson to the same group of learners, but each teacher takes responsibility for different lesson phases (Carpenter et al., 2007; Dugan & Letterman, 2008). In parallel teaching, the class is divided into subgroups and each teacher explains the same content to a subgroup (Cook & Friend, 1995; Graziano & Navarette, 2012).

While many studies focused on the student teacher’s perspective, the present paper also includes the mentor’s and learner’s perspective. Mentors are crucial figures in this process, as their acceptance of new field experience types is determined by the compatibility of the latter with their existing beliefs (Pajares, 1992). Team teaching is considered beneficial for pupils, but their perspective is often not included in research. Therefore, in this paper we would like to provide an answer to the following research questions: How are sequential and parallel teaching experienced by student teachers (RQ1), mentors (RQ2) and learners in the classroom (RQ3) as far as advantages and disadvantages are concerned.

2. METHODOLOGY
2.1. Respondents
Respondents were 14 student teachers (from different disciplines) (Nseq=8; Npar=6), 7 mentors (from different schools) (Nseq=4; Npar=3) and 229 learners (Nseq=108; Npar=121). Student teachers were Master degree students from the University of Antwerp (Belgium) taking a one-year teacher education programme. Mentors had ample experience in teaching (from 11 to 29 years), and had already guided student teachers during field experiences.

2.2. Procedure
Student teachers were assigned in pairs to a school. After observing their mentor, they team-taught during four lessons in either a sequential or parallel set-up. They collaboratively planned the lessons. In sequential teaching, they divided the learning content and taught alternately within one lesson. In
parallel teaching, they divided the class and taught the same content to a subgroup. Afterwards, they reflected on their experiences together. The mentor observed the four lessons and provided feedback after each lesson. In parallel teaching, the mentor partially observed each student teacher’s lesson.

2.3. Instruments
To measure student teachers’ team teaching experiences, we utilised a questionnaire consisting of four open-ended questions: (1) Were you satisfied with a paired placement as first internship? Why (not)?; (2) What was positive about the paired placement?; (3) What was negative about the paired placement?; and (4) Does a paired placement add value to teacher education? Why (not)? This questionnaire was administered after the four team-taught lessons. Mentors were consulted after the four team-taught lessons through individual, semi-structured interviews. The learners’ experiences were measured through a questionnaire with three open-ended questions: (1) Would you like to receive similar lessons in the future? Why (not)?; (2) Provide at least one advantage and one disadvantage of this teaching format; and (3) Do you have any (further) remarks about the lesson(s)?

2.4. Analysis
The mentors’ interviews were audio-taped and transcribed verbatim. These data as well as the student teachers’ and learners’ answers were investigated by means of quantitative content analysis. With the help of a theory and data driven coding scheme, the answers were classified, and analysed with NVivo 10.

3. RESULTS
We successively answer the three research questions (RQ) based on the three perspectives on the teaching models. To illustrate the findings, we make use of citations. For each citation, we refer to the experienced model, i.e. sequential (S) or parallel (P) teaching.

3.1. Student teachers (RQ1)
Table 1 gives an overview of the number of student teachers that reported on each advantage and/or disadvantage. It shows that, for both models, they reported more frequently on advantages than on disadvantages.
Advantages mainly referred to peer support and compatibility. Student teachers indicated that pair placement provided both emotional (“You don’t stand alone, which lowers the stress of the first teaching experience.”) (S) and professional support (“You can address your questions to someone who completely understands what you mean.”) (P). The majority of student teachers in both models also referred to professional growth. During lesson planning, they could complement each other (subject-specific content, pedagogical approaches etc.). Consequently, the lesson plans improved: “We had twice as many ideas. We complemented each other and developed better teaching methods” (S). In sequential teaching, they learnt by observing each other’s teaching practice. In addition, the peer feedback was helpful. Student teachers considered both models as a proper acquaintance with teaching, which smoothens the transition to individual teaching. Finally, some student teachers argued that team teaching was a good preparation for their future teaching career, in which teamwork is important.

Several student teachers in both models experienced personal growth (i.e. an increased self-confidence in teaching). They also reported an increased motivation due to the collaboration.

In both models, a considerable number of student teachers valued the peer dialogue. Throughout the collaboration, lesson(s) (plans) were discuss(es) and ideas and experiences shared.

High workload was the most frequently reported disadvantage: “It was a lot of work to prepare the lessons together. At each step, we checked what the other thought about it” (S). Moreover, it was difficult to find common moments to meet and teach. In sequential teaching, the workload was mainly due to the collaborative planning. Since they had to share the teaching responsibility and
had to be able to help their peer at any time during the lesson, these students possibly felt more strongly involved in collaborative planning. In parallel teaching, the workload was mainly due to practical-organisational issues: dividing the learners into subgroups, searching for a second classroom, and moving the learners to another classroom.

Another disadvantage, mainly for sequential teaching, concerned the fact that it did not resemble future teaching practice: “Sequential teaching does not feel like real teaching practice” (S). In parallel teaching, the student teacher stood alone in front of the classroom, which resembles the real teaching practice more.

Some student teachers from both models experienced feelings of comparison and competition: ‘Both learners and mentor compared me a lot with my peer’ (S) (n=3 out of 8).

In parallel teaching, some student teachers reported feedback-related problems, mainly caused by the fact that the mentor could only partially observe the lesson and, consequently, could not provide feedback on the whole lesson. Further they referred to feelings of anxiety and inconvenience due to practical-organisational concerns and to the fact that they had to teach alone, without the presence of a mentor or peer.

3.2. Mentors (RQ2)

Table 2 shows the number of mentors reporting on the (dis)advantages of both models.

<table>
<thead>
<tr>
<th></th>
<th>Sequential teaching (N=4)</th>
<th>Parallel teaching (N=3)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Learning gains</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>- Decreased workload</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>- More input for student teachers’ evaluation</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>- Higher confidence in lesson quality</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>- Other</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- More complex guidance and evaluation</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>- Weaker relationships with student teachers</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>- Practical organization</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>- Increased workload</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>- More inconvenience</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>- Other</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 2: (Dis)advantages reported by mentors
Mentoring sequential teaching was perceived more beneficially than mentoring parallel teaching. It resulted in more learning gains since it concerned new ideas and new educational approaches. Mentors reported that they learnt a lot about team teaching by observing their student teachers. Moreover, in sequential teaching, mentors received more input for student teachers’ evaluation. As student teachers gave the lessons together, the mentor could compare them, which improved his view on student teachers’ capabilities, which once again aided the evaluation process. Three mentors observed that the lesson quality improved and that student teachers functioned more autonomously: “They were very well prepared. They had already discussed many details and made clear choices. This certainly improved the lesson quality” (P).

Three mentors observed a decreased workload. In case of questions or problems, student teachers more easily asked their peer for advice: “They first tried to find a solution in pairs” (S). The mentors’ guidance (assignments, feedback, evaluations) was offered simultaneously to two student teachers. This was experienced as time-saving: “I need less time to explain and communicate everything” (P).

All mentors guiding parallel teaching identified the practical organisation as a disadvantage (splitting the class group, classroom availability. Other disadvantages relied to both models. All mentors believed that the evaluation of student teachers was more complex. Evaluations were generally organised with both student teachers, which demanded more planning (in order to find a common moment) and it also hindered the mentor in case of individual feedback. Negative as well as positive comments for one student teacher were more difficult to communicate in the presence of a peer. In addition, evaluation in parallel teaching was complicated. The mentor had to switch rooms and therefore missed parts of the teaching process. In sequential teaching, mentors felt that evaluation was entangled because they considered both student teachers as a whole and could not evaluate the contribution of each student teacher separately: “Who was responsible for class management? Who motivated the learners? You can’t see the individual strengths or weaknesses” (S).

The fact that the mentor guided two student teachers entailed weaker individual relationships. This disadvantage was more salient for parallel than for sequential teaching.

A decreased workload was described as a benefit of both models. At the same time, five mentors (out of seven) indicated that the workload increased due to the collaborative lesson planning. Four mentors experienced more stress because of their unfamiliarity with the model.
3.3. Learners in the classroom (RQ3)

Table 3 illustrates the number of learners reporting on both teaching models. It shows that learners report more advantages for parallel teaching and that the type of (dis)advantages slightly differed between the models.

<table>
<thead>
<tr>
<th></th>
<th>Sequential teaching</th>
<th>Parallel teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=108</td>
<td>N=121</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Advantages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentration and involvement</td>
<td>16</td>
<td>14.8</td>
</tr>
<tr>
<td>Atmosphere</td>
<td>24</td>
<td>22.2</td>
</tr>
<tr>
<td>Support</td>
<td>33</td>
<td>30.6</td>
</tr>
<tr>
<td>Variation</td>
<td>28</td>
<td>25.9</td>
</tr>
<tr>
<td>Learning gains</td>
<td>6</td>
<td>5.6</td>
</tr>
<tr>
<td>Fast, fluent pace</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>Different opinions, explanations</td>
<td>18</td>
<td>16.7</td>
</tr>
<tr>
<td>Teachers complementing, supporting each other</td>
<td>11</td>
<td>10.2</td>
</tr>
<tr>
<td>Disadvantages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confusion</td>
<td>34</td>
<td>31.5</td>
</tr>
<tr>
<td>Differences between teachers</td>
<td>34</td>
<td>31.5</td>
</tr>
<tr>
<td>Low levels of concentration and involvement</td>
<td>17</td>
<td>15.7</td>
</tr>
<tr>
<td>Variation</td>
<td>11</td>
<td>10.2</td>
</tr>
<tr>
<td>Interrupting each other</td>
<td>7</td>
<td>6.5</td>
</tr>
<tr>
<td>Splitting the class group</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bad atmosphere</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>Changing classrooms (moving)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lack of learning gains</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>Fast pace</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>Buzzy atmosphere</td>
<td>5</td>
<td>4.6</td>
</tr>
<tr>
<td>More input expected</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3: (Dis)advantages reported by learners.

In parallel teaching, learners were taught in small groups, which resulted in high levels of concentration and involvement: “In a smaller group, it is easier to pay attention and you have to give answers more frequently.” (P). Moreover, the atmosphere was better (fun, cosy, relaxed). These advantages were also reported for sequential teaching, but to a smaller extent. Learners in parallel teaching appreciated the quiet atmosphere: “It is more quiet because only half of the learners are present” (P). Moreover, they reported more learning gains. Parallel teaching was considered to be helpful to understand and remember learning content. Lessons were processed faster and more fluently.

In sequential teaching, learners experienced high levels of support: “The teachers noticed more quickly when we needed help. They could assist multiple
learners at the same time” (S). Learners appreciated the variation of being taught by two teachers, and their different opinions.

For learners in sequential teaching, the presence of two teachers was considered to be confusing and complex: “They both explained the learning content differently and, consequently, it was difficult to follow the lesson” (S). Learners experienced differences: “They contradicted each other” (S) and lower concentration and involvement levels of the team teaching partner: “When one student teacher was talking, the other one was making noise or daydreaming. This distracted me.” (S).

Learners of parallel teaching disliked the fact that the class group had to be split. They were concerned that the other half of the class would see different learning content and, thus, would be treated differently. Further disadvantages were a fast pace and a buzzy atmosphere. Due to the smaller learners’ group they had to answer more frequently which was experienced as a disadvantage by some learners.

4. CONCLUSION

The present study investigated two team teaching models, i.e. sequential and parallel teaching, by examining the experiences of student teachers, mentors and learners in the classroom. The results of the mentors and the learners are straightforward. Mentors experienced more advantages of sequential teaching. Learners were in favour of parallel teaching. Student teachers’ responses were less univocal. Since they reported more frequently on advantages than on disadvantages for both models, team teaching is considered to be a valuable alternative to individual field experiences.

Both models provided support and dialoguing opportunities and resulted in professional growth. These advantages are in line with the literature on student teachers’ team teaching (Authors, 2014). Another frequently reported advantage in the literature is personal growth (e.g. Birrell & Bullough, 2005). It was mentioned by several student teachers, especially in parallel teaching as they taught a smaller learners’ group, which lowered pressure and increased self-confidence. Both models were seen by student teachers as a proper acquaintance with teaching, which facilitated the transition to an individual teaching placement. Therefore, team teaching may help to minimize the reality shock that beginning teachers often experience (Brouwer & Korthagen, 2005).

High workload was the disadvantage most frequently reported by student teachers: mainly due to the collaborative planning for sequential teaching and to practical-organisational issues for parallel teaching. An additional disadvantage of sequential teaching was the experienced lack of realism. Student teachers argued that collaborative teaching did not resemble the future (individual) teaching practice. Student teachers in parallel teaching experienced
feedback-related problems and feelings of anxiety and inconvenience. Both were caused by practical issues and by a limited observation by the mentor and peer. The practical organisation was also the main disadvantage of parallel teaching as experienced by mentors. Mentors barely experienced advantages of parallel teaching. Instead, they valued sequential teaching, which offered learning gains, gave more input for evaluation and increased the confidence in the lesson quality. Some elements were described as both advantages and disadvantages, which indicates mentors’ diverse and balanced opinions. Learners appreciated parallel teaching slightly more, with higher levels of concentration and involvement and a good atmosphere. The advantage most frequently reported for sequential teaching was the support due to the presence of two teachers. This advantage also came to the fore in other studies (Birrell & Bullough, 2005; Gardiner, 2010). In contrast to the literature, which showed only one main disadvantage of team teaching for learners, i.e. confusion (Goodnough et al., 2009), this study revealed several disadvantages of sequential (e.g., confusing, low levels of concentration and involvement) and parallel teaching (e.g., splitting the class group, differences between teachers). Based on these findings, a combination of both models followed by individual teaching experiences could be a good alternative for teacher education institutes willing to introduce field experiences inspired by collaborative learning.

REFERENCES


An Excel® application for calculus in Geomatics Engineering.

Carlos Enríquez ¹, María Isabel Ramos², and Manuel López ³

¹ Dept. Ing. Cartográfica, Geodésica y Fotogrametría. Universidad de Jaén. Campus Científico Tecnológico de Linares. Avda. de la Universidad, s/n. 23700 Linares (Jaén), Spain. cenrique@ujaen.es

² Dept. Ing. Cartográfica, Geodésica y Fotogrametría. Universidad de Jaén. Campus Las Lagunillas. Paraje de las Lagunillas s/n. 23071 Jaén, Spain. miramos@ujaen.es

³ Dept. Ing. Cartográfica, Geodésica y Fotogrametría. Universidad de Jaén. Campus Científico Tecnológico de Linares. Avda. de la Universidad, s/n. 23700 Linares (Jaén), Spain. mlromero@ujaen.es

ABSTRACT
Geomatics engineering is a new developing engineering discipline which focuses in information that needs a location and incorporates other fields of engineering, such as surveying, geodesy or mathematical cartography. These disciplines require calculation procedures that cover a great variety of calculus and, unless institutions and universities offer free online applications to solve basic calculus, users often have to switch applications to develop certain calculation procedures. So the idea was to develop a single application with helps our students to solve the most common problems of our subjects. The spreadsheet Microsoft Excel® should be a good option for our purpose because it is a well-known and widely used tool for users of different level of computer applications but it is short of functions which deals with the specific problems attached to these disciplines. So, we have developed an add-in, a set of functions packed in a file that add optional commands to Excel, to improve Excel® functionality and to help in the calculus in surveying, geodesy and mathematical cartography. This add-in also includes additional mathematical functions designed to solve more general problems.

KEYWORDS: geodesy, mathematical cartography, surveying, geomatics, Excel.

1. INTRODUCTION
In the learning process of any subject, the students pass through two phases: in the first one, they learn the mechanical procedure required to obtain a solution and then they learn how to apply the solution. For example, first they learn how to solve a second degree equation and then they learn how to apply it to the parabolic motion. However these mechanical procedures used to be tedious and once the student is fluent in them, it is a waste of time to repeat them time after time and it is better to go deeper into the subject. So the idea
was to develop a single application which helps our students to solve the most common problems of surveying, geodesy and mathematical cartography. These disciplines require calculation procedures that cover a great variety of calculus and unless there are free online applications to solve these basic calculus, users often have to switch applications to develop certain calculation procedures.

The spreadsheet Microsoft Excel® should be a good option for our purpose because it is a well-known and widely used tool for users of different level of computer applications but, on the other hand, it is short of functions which deals with the specific problems attached to these disciplines.

So, to solve this lack of functionality we have developed an Excel® add-in to allow our students to deal with the most common problems and task of these disciplines.

Our main aim is to provide an improvement in the development of both learning and teaching process in subjects where tedious calculations must be used, primarily those related to surveying, geodesy and mathematical cartography with the help of this add-in.

2. THEORETICAL FRAMEWORK

An add-in is a set of functions packed in a file that add optional commands to Excel®. The idea is that the user can not only custom its own functions to increase the power of Excel® but distribute and allows others to use them in an easy way as well. To design it, the user can use the Visual Basic included in Excel®.

The extension of an add-in file is usually .xla or .xll and it should be stored in the folder:

\Users\<User Name>\AppData\Roaming\Microsoft\AddIns

All the formulas used are known in the scientific literature and can be found in many sources like Enríquez et al (2005), Grafarend & Krumm (2006), Hooijberg (1997) or Snyder (1982). We have not made any improvements in the formulation and we use it like they are given in classical literature, but it must clear that it was never our intention neither to improve them nor to develop new algorithms.

As the main aim of the project was to help the students in their studies it seems to be appropriate to know their opinion about the add-in. So, to get their feedback we created a thirteen question survey which could be accessed in two ways: one for our students inside the UJAEN–ILIAS (http://goo.gl/yKGk6V) and the other in an open environment (https://goo.gl/vG9dx3).
Finally, the last aim of the project was to spread the add-in between the entire educational community, for this reason the name of the functions, their description and the manual are in English, unless the manual is also in Spanish, and, as it has been developed under the Creative Commons spirit, the user is free to distribute or modify at their own will.

3. METHODOLOGY.

Now we will describe the methodology applied to get our goals. Firstly we will describe the functions and then the survey which has been created to know the opinion of the users.

The Visual Basic included in the Excel® allows us to develop the needed functions. For each function, its description, the variables that are needed, both the input and the internal ones, the output, the equation and the full code in Basic is given together with the add-in there in a manual which also contains the installation procedure. The information relative for each function is shown in Table.

<table>
<thead>
<tr>
<th>Function name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the function</td>
<td>What function does.</td>
</tr>
</tbody>
</table>

**Input variables**

Name of the input variables as well as their descriptions and units used.

The variables, when needed, are always introduced in the following order: semi-major axis (a), first eccentricity (e²), latitude/x-coordinate, longitude/y-coordinate and the rest of the variables when needed.

Angles, unless specified, are always expressed in sexagesimal pseudo-decimal format: dd.mmss

The units are always expressed in the International System

**Auxiliary variables:**

Name, description and units of the variables used during calculus.

**Output variable**

Description of the value returned by the function including, wherever is needed, its symbol and unit

Equation of the function

Code of the function in Visual Basic

Table 1: Information for each function

The result is an add-in formed by 94 functions that can be arranged in three families: math, geodesy and cartography (see Figure).

- Math, which contains generic functions that can be used in a wide variety of mathematical problems.
- Geodesy, which contains functions related with geodesy problems.
- Cartography, which includes all functions needed for the usage of a map projection (direct and reverse transformation, calculus of the linear distortion, calculus of the meridian convergence and calculus of the arc-to-chord correction) for the three most common projections: Lambert, Gauss–Krüger (GK) and UTM.

<table>
<thead>
<tr>
<th>Maths</th>
<th>Geodesy</th>
<th>Cartography</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic functions that can be used in a wide variety of mathematical problems. For example the function $\text{toRAD}$ converts an angle in sexagesimal format to radians.</td>
<td>Related with geodesy problems as change of Cartesian coordinates to geodesic.</td>
<td><strong>Lambert:</strong> conical, conformal, projection formulas.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Gauss-Krüger:</strong> cilindrical, conformal, transversal, projection formulas.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>UTM</strong></td>
</tr>
</tbody>
</table>

Figure 1: Family tree of the functions

The functions included in each module are:

**Math**
- Complementary trigonometric functions.
- Calculus of distances in two and three dimensions.
- Direct and inverse transformation between pseudodecimal sexagesimal format (dd.mmss) and radians.

**Geodesy**
- Direct and inverse transformation between geodetic and Cartesian coordinates.
- Calculus of the auxiliary function $\eta^2 = \frac{e^2 \cos^2 \phi}{1 - e^2}$.$^2$
- Calculus of the undulation of the geoid for the Hayford ellipsoid according to the NIMA model.
- Calculus of the length of a meridian arc for a given latitude and the inverse problem.
- Calculus of the radii of curvature, M and N, of the ellipsoid.
- Calculus of the direct and the inverse geodetic problem (Vincenty, 1975).

**Gauss-Krüger**
- Direct and inverse transformation between geodetic and Gauss Krüger coordinates.
AN EXCEL® APPLICATION FOR CALCULUS IN GEOMATICS ENGINEERING.

- Calculus of the meridian convergence in geodetic and GK coordinates.
- Calculus of the linear distortion in geodetic and GK coordinates.
Lambert
- Direct and inverse transformation between geodetic and Lambert coordinates.
- Calculus of the meridian convergence in geodetic and Lambert coordinates.
- Calculus of the arc-to-chord correction in the Lambert projection.
- Calculus of the linear distortion in geodetic and Lambert coordinates.
- Calculus of the geodetic distance in the Lambert projection.
UTM
- Direct and inverse transformation between geodetic and UTM coordinates.
- Calculus of the meridian convergence in geodetic and UTM coordinates.
- Calculus of the arc-to-chord correction in the UTM projection.
- Calculus of the linear distortion in geodetic and UTM coordinates.
- Calculus of the linear distortion for finite distances in UTM coordinates.
- Calculus of the geodetic distance in the UTM projection.

The aim of the survey is not only to know which are the opinion of our students about the add-in, but also we hope to identify its possible flaws. The thirteen questions of the survey are:

1. Sex
2. Select your current studies
3. Number of years that you are taking the subject in which you mainly uses the add-in
4. Value the utility of the add-in in the study of the subject in which you are using it. (1: An absolute dead loss - 5: It is a must !!)
5. Value the utility of the add-in in the study of your degree (1: An absolute dead loss - 5: It is a must !!).
6. Value the execution of the add-in (1: As a dead snail - 5: Now-you-see-it, now-you-don't !!).
7. Have you found any flaws in the add-in?
8. Description of the flaws
9. How easy was to install the add-in? (1: Awful - 5: Dead easy).
10. How easy was to use the add-in? (1: Awful - 5: Dead easy).
11. Would you recommend/share the add-in to others? (1: No way - 5: Definitely YES)

12. Overall, which is your opinion of the add-in (1: Awful - 5: Pretty cool)

13. What recommendations would you offer for improving the add-in?

The first three are just made for identification purpose. The questions 8 and 13, which are a short answer question and the rest are multiple choice question, with a metric value which ranges from 1 (the worst) to 5 (the better).

4. RESULTS.

As an example of the functionality of this add-in, two applications are described: one, for regular classes and the other in a current research project.

One of the most common problems in Geodesy is the calculus of the parameters of transformation between two references systems. The way the problem is solved is described in Strang & Borre, (1997):

\[
\begin{pmatrix}
X \\
Y \\
Z
\end{pmatrix}_A = (1 + k) \begin{pmatrix}
1 & \omega_Z & -\omega_Y \\
-\omega_Z & 1 & \omega_X \\
\omega_Y & -\omega_X & 1
\end{pmatrix} \begin{pmatrix}
X \\
Y \\
Z
\end{pmatrix}_B + \begin{pmatrix}
t_X \\
t_Y \\
t_Z
\end{pmatrix}
\]

where

- \((X, Y, Z)\) are the Cartesian coordinates in both systems
- \(\omega_X, \omega_Y, \omega_Z\) are the rotation angles about the X, Y and Z axis
- \(t_X, t_Y, t_Z\) are the components of the translation array
- \(k\) is the change in scale of datum

To solve this problem we have created a file in Excel® that can be used as a template. The file has three sheets: in the first you have both the input data (the coordinates of the four points needed to calculate the transformation parameter) and the output (the transformation parameters and the residuals). In this sheet you can also input the coordinates of a fifth point to be used as a control point. Unless the input data are usually the UTM coordinates, the template can be easily modify to accept the geodetic coordinates. In the second sheet are the geodetic and Cartesian coordinates for both set of points. In the third sheet is where the magic happens: the transformation parameters and the residuals are obtained by solving using least squares (Harvey, 2006), the well-known system:

\[
v = Ax - L
\]

where:

- \(A\): coefficient matrix.
- \(x\): vector of unknowns.
- \(L\): vector of observations.
v: vector of residuals.  
The solution is given by:

\[ x = (A' \times A)^{-1} \times A' \times L \]

The flow diagram of the process is show in Figure 1.
and a partial view of the first sheet is shown in Figure 2
In the research project, we are working in the generation with GPS of a digital elevation model of the archeological site of Castulo. As its extension is about 74 ha, it is necessary to get the survey during many days. So we must control, in an easy way, the zones in which the survey has been made. Luckily Google Earth Pro does the work for us, because we can input the survey that we have made as a collection of points and then visualize our work. The problem is that the output of the GPS is in UTM coordinates and the input for the points must be done in geodetic coordinates in decimal degrees format (Victoria State Government, 2017).

So, to obtain the correct format, we download the data from the GPS controller in a plain text arranged in columns ordered as:

Name, Easting, Northing, Height, Code.

then we open the text file in Excel and we apply the functions:

\[
=\text{+Grados(toRAD(UTM\_Latitude($B$1;B$2;J2;K2;30)))}
\]

\[
=\text{+Grados(toRAD(UTM\_Longitude($B$1;B$2;J2;K2;30)))}
\]

being:

$B$1: address of the cell where is stored the value of the major semiaxis.

$B$2: address of the cell where is stored the value of the first eccentricity.

$J2$: address of the cell where is stored the value of Easting coordinate.

$K2$: address of the cell where is stored the value of Northing coordinate.

to all points. The geodetic coordinates in decimal degrees format, as it can be seen in Figure, are in columns C and E.
A simple copy and paste through all the data allow us to obtain the coordinates of all the points in the desired format in a few seconds. Now the data can be easily import and view in Google Earth Pro (see Figure).
5. IMPLICATIONS/DISCUSSION.

Since the idea of creating an add-in is to help our students in their learning process, it is reasonable to assume that their opinion is determinant to know if our goal has been achieved. However as it was launched less than a year ago, the number of replies to the survey is pretty low, but thanks to the comments, we just know that it should be ideal to implement an automatic installation procedure and to write a book to learn how to exploit all the functionalities of the add-in. The results of the survey are shown below in three graphs.

![Utility of the add-in](image-url)

Figure 6: Utility of the add-in
6. CONCLUSIONS
At the beginning of this project we have two goals: the elaboration of an add-in which helps our students to solve geodesic and surveying problems and to spread it.

The result has been a bunch of useful functions related with geodesy, surveying and mathematical cartography joined together in one single package which can be easily implemented in the most popular spreadsheet.

Figure 3: Performance of the add-in

Figure 8: Opinion about the add-in.
This add-in not only extends the capabilities of Excel® but also allows teachers and students to solve exercises more quickly and safely, eliminating tedious calculations as well as to check the results provided by commercial programs. It is also possible, combining with Excel® functions, more complex calculations as geodetic networks adjustments measured by GPS on the UTM projection, without resorting to any other survey package. In addition the user acquires a broader view of the usefulness of Excel® that can be useful in its professional life. Finally, it opens the possibility to develop other more specific add-in focus on map projections or on surveying problems. To get the other goal we have presented the add-in in two congress related with this kind of topic and send it via e-mail to colleagues through all the world. Therefore, if you want to obtain the English version, you can download it in: goo.gl/8z3SuH Also if you find any error, want to make any comment or want to help with this project, please contact with one of the authors. Also you can help us by filling out the survey in (Error! Marcador no definido.). You must be sure that any help will be welcome.

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ABSTRACT
Research on children’s curriculum-making experiences as they move from home, school, Out of School Care (OSC) and community activities is sparse. From a view of curriculum as a course of life (Connelly & Clandinin, 1988; Clandinin & Connelly, 1992) this study inquired into the curriculum-making experiences of children within multiple worlds. Using narrative inquiry (Clandinin & Connelly, 2000), I inquired into the experiences of three children moving across school, OSC, their homes and community. Working within the three-dimensional narrative inquiry space (temporality, sociality, and place), I identified multiple worlds each child experienced (Lugones, 1987). I identified features of curriculum making that the children experienced in each of their worlds. The experiences within worlds shaped the overall curriculum or life making of the child.
Children live out curriculum-making experiences in multiple places including the OSC, home, and community. The lives and the curriculum that children and adults make in and out of schools are complex as lives move between multiple places, familial and social worlds.
This study shows that the worlds that children inhabit are not limited by place. Children live out curriculum-making experiences in multiple places, such as the OSC, home, and other community places. The places where children enter different worlds influence the experiences within that world, but the child can continue to inhabit that world when the child is in a different place. The different worlds that children inhabit and travel between are experienced in multiple places and shape their curriculum making and life making.

KEYWORDS: Curriculum-making, narrative inquiry, Out-of-School Care, Worlds, Experience

1. INTRODUCTION
I entered the Elementary Education Program at the University of Alberta in Canada to with a background of teaching in daycare and Out-of-School Care (from now referred to as OSC) classrooms for many years. Thinking about my experiences as a teacher in an OSC classroom throughout my program, I reflected on my experiences as a child in daycare and OSC classrooms. As a child I traveled among home, school, and daycare worlds. The world of my family was brought, in part, with me as I entered school and attempted to live within the stories of school and school stories (Clandinin & Connelly, 1996). I
lived stories of movement as I traveled between many different worlds: home (in many different cities), schools, daycares and other care facilities. After coming to graduate studies at the University of Alberta, I inquired into my stories as a child, of becoming a teacher, and as a daycare teacher, and the many worlds that I inhabited. I wondered how other children experienced living in a home world, a school world, and a daycare world (worlds I saw as being bound by place)? These wonders formed the puzzle for my doctoral research, to learn about the curriculum-making experiences of children within their familial and daycare worlds. I was not aware of how my understandings of curriculum-making and worlds would change, extending far beyond that of geographical place.

2. THEORETICAL FRAMEWORK
Ted Aoki (1993) called the curriculum document that shaped many of my education objectives during my life the mandated curriculum. Aoki described lived curriculum as “not the curriculum as laid out in a plan, but a plan more or less lived out” (p. 257). In other words, curriculum encompassed the living of a person’s life. It was Aoki’s notions of curriculum as something lived that helped me to understand Connelly and Clandinin’s (1988, the idea of curriculum) notions of curriculum as life making, as a “life course of action”:

Curriculum is often taken to mean a course of study. When we set our imaginations free from the narrow notion that a course of study is a series of textbooks or specific outline of topics to be covered and objectives to be attained, broader and more meaningful notions emerge. A curriculum can become one’s life course of action. It can mean the paths we have followed and the paths we intend to follow.

(Connelly & Clandinin, 1988b, p. 1)

As I became awake to these new notions of curriculum as a dynamic living course of action in a persons life, beyond the place of school. In the 1980s, theorists such as Clandinin and Connelly championed the idea that teachers were not only dispensers of the mandated or planned curriculum but active creators of curriculum within their classrooms. This notion of thinking of teachers as curriculum makers resonated with me. I realized that the same ideas could be applied to children. To this point I had thought about curriculum and curriculum-making as being bound by place. I viewed the physical place of school or home as worlds, bound and contained by geographical area. Just as my understanding of curriculum had been limited to the mandated or planned curriculum, my understanding of the worlds children inhabit had been limited by place. It was Maria Lugones’ (1987) conception of worlds and world traveling that allowed me to see worlds as existing beyond place.
As my views of curriculum were deepening, Lugones’ ideas provided the foundation understanding the experiences of children outside of school. Lugones introduced me to the concepts of each person existing in many worlds and of the possibility of travel from one world to other worlds. Lugones described world traveling as living in different worlds where we construct ourselves, and are constructed by others, differently. Thus, this different understanding of ‘worlds’ was important as I came alongside participants.

3. METHODOLOGY
Narrative inquiry as defined by Clandinin and Connelly (2000) is experiential and relational and required me, as researcher, and the participants to engage in this work together and allowed me to deeply inquire into the experiences of the participants.
From February 2015 to May 2016, I visited an OSC classroom in Edmonton, Alberta approximately 50 times. I began by observing the class. In, April 2015, I began to ask children and their families to be part of the research beginning by asking specific children, who fit the study criteria of attending elementary school and an after school program or OSC, if they would be interested in talking with me about their experiences in the OSC. During July and August, many of the children who attended the OSC during the school year stopped coming. In August of 2015, Addison, who was in grade two at the time, and her mother, Lilah, agreed to be participants.
I came to the OSC nearly every day through July and August, playing games with the children on days when they were in the daycare and going with them on field trips. It was during this time, when Addison was at the daycare for the majority of the day, that I was able to have conversations, eat lunch with her, and listen to her stories.
As the school year began in September, I continued to attend the daycare every day after school until the end of November 2015, when I began to negotiate my exit from the daycare. I visited the daycare once a week during December 2015 and then visited the OSC once a month from January 2016 to May 2016. In October 2015 I began writing and negotiating narrative accounts for Addison and finished in November 2015.

4. RESULTS
As I looked across Addison’s worlds, I saw how important other people, children and adults, were in Addison’s life making. Addison was an only child. Addison’s worlds were shaped by children and adults who inhabited her worlds of play, adventure and friendship.
In Addison’s world of play, Addison and her friends taught and learned from each other. When playing outside and in the Centres within the OSC, they
constructed stories around families, relationships, and animals with powers. Addison, in her all-girl group of friends, often thought of ways to adjust each story to include everyone who joined in the play. As girls came and left, being dropped off and picked up by their parents at the OSC, Addison was able to make adjustments to the world of play.

Though Addison was usually the one to adapt stories within her world of play, each of the girls were involved in the negotiation of the stories to be played, suggesting settings, possible story lines, and characteristics of characters. As Addison and the other girls developed their characters and overall storyline of each play, Addison was able to bring what she and the other girls knew together to create a mutually negotiated story to play out. Despite these stories often involving characters with powers, or animals with human or superhuman qualities, the subject matter of Addison’s world of play was one of relationships. Each storyline seemed to center on families or friends figuring out ways to stay in relation with each other. In Addison’s world of play, parents worked to have good relationships with their children and friends worked to resolve issues in order to remain friends.

I wondered about the impact a wider social milieu had on her world. Addison, and many of her friends, came from families that had been in Canada for multiple generations. Many of the families looked like the normative family with a mother, father and children. Addison was the only one in the group who lived with her mother and grandmother. The families depicted in Addison’s world of play resembled normative North American family structure. Sometimes the families in Addison’s play included grandparents.

I observed curriculum making in Addison’s world of friends. I learned Pokémon to connect with other children in the OSC and Addison asked me to teach her about Pokémon, which allowed us to get to know each other. While she already had Pokémon cards, it was clear that relationship building, as well as learning something new, was the subject matter.

There was milieu within the institutional setting of the OSC, shaped by a hierarchy of adult teachers that children must listen to and obey. Addison spent most of her time, after school and the OSC, surrounded by adults. There were few children for Addison to interact with at home or in her community outside of the OSC. Many of the adults in her community felt like family, so it was in this world of friends that Addison was able to interact with different adults, developing friendships, sharing stories, teaching and learning from each other.

Addison enjoyed learning as she listened in meetings to the OSC teachers and enjoyed learning from friends while in line, telling stories, looking at books together, and telling each other about their lives outside the OSC. Addison’s relationships the OSC teachers were positive. I saw that Addison cared about
her relationships with the adults, as she cheerfully approached them each day after school, often giving hugs to one or more of them and telling them about her day.

Addison’s time at the OSC was limited because Lilah, her mother, picked her up, usually within an hour of school dismissal. With her mother, she entered a world of adventure. Addison inhabited her world of adventure with what I saw as found and chosen family, found being those who are friends that become family and chosen being her biological family (Lindemann-Nelson, 1995). From the stories that Addison and Lilah told me of their adventures, I imagined that Lilah wanted Addison to know that it is important to build and maintain relationships throughout life as well as that the world held great possibilities for adventure.

The curriculum made by Addison and her found and chosen families in her world of adventure was not bound by place. Every interaction had the potential to become an adventure, from going to the dentist, to family get togethers, to going to concerts. The specifics of the adventures Lilah and Addison went on were impacted by the milieus that were connected with place or specific activities, but it was Addison’s familial milieu that distinguished the curriculum making in this world. It was important to do what was necessary to stay connected with people. Even though Addison and Lilah spoke of enjoying their time with their found family, their friends, it was important to stay connected to aunts and cousins. Because Addison’s immediate family consisted of her mother and grandmother in addition to herself, it was important to both Lilah and Addison to have connections, to have people who could be counted on in times of need and to be with in times of happiness and this was not always Addison’s biological family.

5. IMPLICATIONS/ DISCUSSION

Within Addison’s worlds, I recognized how the curriculum commonplaces were at play. Learner, teacher, subject matter and milieu were in dynamic interaction. They were “not static elements put in their proper place but [were], instead, in a fluid state of interaction” (Connelly & Clandinin, 1988a, p. 7). Addison was a teacher and learner in her worlds. The subject matter shifted based on what materials were in the space, books, dolls, or Legos. Her worlds were also influenced by the many nested milieus as she moved from place to place, entering multiple worlds. As Addison world travelled, teacher, learner, and subject matter shifted.

Each day Addison spent at the OSC afterschool was comprised of curriculum making that was in part shaped by the OSC curriculum making but was most strongly shaped by the curriculum resources (Lego, Pokémon, dolls, etc.) and the curriculum spaces (time and place) provided by the day care. Superheroes
and fantasy creatures were present no matter what centre Addison chose to play in. Within Addison’s world of play, she played out the stories of magical animals, imagining “as if” stories (Sarbin, 1986) and asking “what if” (Paley, 2004), using magical animals to tell stories of family and relationships.

Addison was the central element in her own curriculum making in the worlds she inhabited. The OSC allowed children, in large part, to direct themselves, who to play with, and what activities they did. The majority of the girls were found in the Doll or Dress Up Centre, playing out their stories of families or animals with powers together. The children had a lot of choice in the OSC, as they were able to choose which centres to be in and how long to spend in each centre. If a child spent their whole time in one centre, or continually moved from centre to centre, they were able to do so. They could determine their own curriculum making within the OSC, with the materials available to them, and within the physical set up of the room, with the freedom to change as different curriculum was being made. This type of choice is often absent at school. When Addison left the OSC, she had fewer opportunities to be around children her own age. This shaped the curriculum that she was able to live out at home and in her community, and the ways she constructed herself.

Lugones (1987) notes that each individual constructs themselves through their experiences with others. Addison held multiple constructions of herself, which she animated at different times. At times the constructions children hold bump up against the constructions that other children, teachers, or adults have for them. Addison’s construction of herself seemed to rarely bump with the teacher’s constructions of her.

Addison inhabited multiple worlds, at times simultaneously, while in the OSC at home and in her communities. These multiple worlds allowed for multiple subject matters and milieus to be in dynamic interaction and allowed for multiple constructions of the inhabitants to exist. Multiple worlds can be inhabited at the same time and the constructions within those worlds can be animated in part, as a whole, or not at all. These worlds and constructions of self are influenced by where they take place, for instance inhabiting Addison’s world of play at the OSC or at home influences teacher, learner, and subject matter as well as the milieus that impact the curricula being made.

What was important, as I awakened to the multiple worlds that Addison inhabited, is that each world, and the many other worlds I was not aware of, allowed Addison to make the curricula that she lived.

6. CONCLUSION
For years I worked in an afterschool or OSC program. I began to awaken to the experiences that children were undergoing as they attended the OSC and as I watched children from different backgrounds interacting in the OSC. This is
where the seed for my research puzzle grew from as I wondered about the children and families in the OSC program. Their experiences in the OSC seemed different from their experiences in school. As they entered the classroom we shared, they were allowed to explore their interests as best they could within the institutional structure and with the materials we had available. As I listened to their interests and the stories they were telling me, I asked them what materials they wanted, and did my best to provide them. I understood that their curriculum-making worlds were not ones I had been aware of before. I was not yet able to fully formulate my wonderings at this time.

While I became awake and began to wonder about the children’s experiences outside of school, it was through coming alongside Addison that I began to understand the multiple worlds in which I, and others, lived. I began to be aware of the curriculum-making experiences that occurred for the children outside the times and places of schools. As Addison and I engaged together in this research, who I was as an educator changed. I began to think differently about what places like Out of School Care (OSC) might be. I began to see that it was important to see children’s experiences over different times and places, rather than as occurring only in homes and schools.

As I came alongside Addison and her mother, and OSC teachers, I began to awaken to my experiences in new ways. For example, I began to see how my own experiences, my stories to live by, influenced my experiences in the daycare with the children. I became more reflexive about who I was as a curriculum maker with children in the OSC. I also began to awaken to how families inhabit multiple worlds and, as an OSC teacher, I needed to travel to the multiple worlds of families. I also came to understand the importance of staying awake to the multiple curriculum-making experiences of children, including their experiences in the OSC and in their homes and in community activities. I recognized that with the multiplicity of worlds that children and adults inhabit, there is more that I can learn about children’s, parents, and teacher’s experiences.

I gained a deeper understanding of the importance of attending to children’s, teachers’ and families’ experiences of curriculum making, and of worlds that provided me with a more meaningful way to view these theories in the future. As I continue to reflect on these experiences, more children’s worlds and curriculum making will become visible to me and deepen my understanding of curriculum making and world traveling.

I know I need to continue to try and understand the ways children, parents, and teachers are composing lives across multiple worlds. As I imagine future inquiries, I see the importance of coming alongside children in ways that will help me travel to their worlds and see who they are becoming. Understanding
curriculum making as occurring within worlds that children inhabit and that comprise their life making is part of what I want to continue to explore. Children compose their lives over multiple times and places, and I now understand that curriculum-making experiences must be inquired into, explored, and engaged with playfully (Lugones, 1987).

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ABSTRACT
Professional learning communities (PLC) have been hotly discussed over the past decade. It is expected that PLCs can help build teacher leadership. Although this PLC concept is rooted in the western countries, most official government documents including Asian regions ‘buy-in’ the idea of PLC and have made attempts to implant and borrow this idea in the educational reform. Various literatures revealed that PLC has positive impacts on school improvement and student achievement. Although teacher education is a cornerstone for preparing and shaping prospective teachers for the future, capacity building for PLC through teacher education is yet well-developed and there is a lack of empirical studies to investigate what prospective teachers understand the meanings of PLC and their needs in developing PLC during teacher education programmes. The current study aims to explore what and how prospective teachers understand teacher leadership and PLC. With the use of explanatory sequential mixed method approach, a survey was first conducted to a group of prospective teachers (N=76) as followed by 15 individual interviews that attempted to elicit how they think about PLC in school settings. The study revealed that prospective teachers were generally positive towards perceptions of PLC.
Interestingly, prospective teachers seldom realized the value of shared vision. Discussion of the findings and implications for teacher education and research directions are discussed.

**KEYWORDS:** professional learning communities (PLC), teacher leadership, prospective teachers, shared vision, Hong Kong teacher education.

1. **INTRODUCTION**

Professional learning communities (PLCs) has been hotly discussed over the past decade. The emergence of PLC is realized as a significant strategy to the development of quality learning and teaching through building up shared values and expectations among teachers to support student learning (DuFour, 2011). PLCs are expected to build teacher leadership capacity in schools. Most official government documents including Asian regions ‘buy-in’ the idea of PLCs and have made attempts to borrow this idea in the educational reform. In Hong Kong, PLCs has been one of the key catalysts in facilitating school improvement and curriculum development in the recent official documents (ACTEQ, 2003; CDC, 2009).

2. **UNDERSTANDING PLC**

There are a wide range of definitions about PLCs. PLC generally refers to a group of people working together and learning from each other for continual improvement through systematic, collaborative professional development activities at schools (DuFour, 2011). PLCs are commonly characterized as shared vision, collective responsibility, collaborative decision making, reflective dialogue, deprivatization of practice (shared practice), shared (widespread) leadership, trust, respect, and group and individual learning (Bolam et al., 2005). Hord (1997) proposed the basic requirements necessary for building PLCs include shared leadership, shared vision, collective learning, peer feedback, physical conditions and human capacities, while the operation of PLCs relies on teacher leadership, which embodies a set of skills and “capacities to lead the school” (Smylie & Eckert, 2017).

With increasing demands on using PLC for building teacher leadership capacity, attention has been drawn to teacher preparation in PLC engagement (Harris, Lowery-Moore, & Farrow, 2008). Cheng & Szeto (2016) proposed that teacher educators should “open up leadership opportunities for every preservice teacher, and prepare the teachers with the necessary attitudes for leadership” (p. 147) to enable them to “utilize their skills and experience” in PLC engagement (Smith, Hayes, & Lyons, 2016) in the hierarchical, high “power distance” cultures of schools in the Asian regions (Dimmock, 2012).
The study thus aims to fill the gap between the current literatures and to address the needs for understanding prospective teachers’ perceptions of PLCs in an Asian region (i.e. Hong Kong), with two research questions: 1) What are prospective teachers’ perceptions of PLCs?, and 2) Are there any relationships amongst the PLC components with demographic variables such as gender and teaching practicum experience?

3. METHODOLOGY
3.1. Research settings and participants
Applying mixed method approach, a survey was conducted to a group of prospective teachers (N=76) as followed by 15 individual interviews that attempted to elicit what and how they think about PLC in school settings. The study was conducted in two courses in a bachelor of education programme in one Hong Kong university in 2015-16.

3.2. Data collection
Quantitative data was collected with an online survey according to previous PLC studies (e.g., Bolam et al., 2005). The survey included 27 items assessing teachers’ perceptions of teacher leadership on a 6-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). Consent was obtained from prospective teachers. 15 prospective teachers with different major of study and year level were approached to participate in the follow-up individual interviews. The interviews were carried out by two research assistants on campus.

3.3. Data analysis
Quantitative data were analysed using Statistical Programme for Social Sciences (SPSS). The 27 survey items were extracted through the application of Kaiser Normalization. Principal Component Analysis (PCA) was used to help “[summarize] the inter-relationships among the variables in a concise but accurate manner as an aid in conceptualization” (Gorsuch, 1983, p. 2). Construct validity was established, with the explained variance of 67.11%. Six components were identified: “Teacher collaboration”, “Assessment for learning”, “Student learning”, “Shared leadership”, “Reflective dialogue”, and “Shared vision”. Descriptive analyses such as frequency counts, mean, standard deviation, MANOVA and correlations were carried out. Qualitative analysis was done to interview data through repeated listening to the audiotapes and reviewing the transcribed interviews, as followed by generating key themes (Guest, MacQueen, & Namey, 2012).
4. RESULTS.

4.1. Overall perceptions of PLC

Table 1 indicated prospective teachers’ perceptions of PLCs. In general, prospective teachers tended to realize the importance of PLCs, with an overall mean score of 4.80 (SD=0.48), where all the composite mean scores of six components got a mean score above 4.0. “Teacher collaboration” (M=4.94, SD=0.55) was the highest composite mean score while “Shared vision” obtained the lowest mean score (M=4.46, SD=0.70). This finding showed that teachers saw the significant role of teacher collaboration in building PLC yet they did not fairly reckon that shared vision is important to PLC.

4.2. Teacher collaboration

Both quantitative and qualitative data evidenced that prospective teachers in the study generally realized the importance of teaching collaboration. In the survey, Component 1 “Teacher collaboration” got the highest composite mean score amongst the other five components, while “Q34. Teachers should learn together and apply the new knowledge to solve problems” (M=5.08, SD=0.78) obtained the highest mean score in the survey. Interview data indicated that prospective teachers commonly found teacher collaboration plays vital roles in working at schools. Prospective teachers reckoned that the value of teamwork.

“... just like collaborative lesson planning, it helps let us know our weaknesses and know how to improve, this efficiency will become better, if compared with that I make the whole lesson plan and let others read, reflect or follow-up. This will raise our efficiency and effectiveness. (YCK, June 24, 2016)

Prospective teachers pointed out that trust and respect are the fundamentals in teacher collaboration, acting like a mediator to the facilitation of student learning through knowledge sharing (Lee, Gillespie, Mann, & Wearing, 2010).

“Teachers’ teamwork requires trust and respect with each other. Like what we have discussed with each other about a task, then we believe that team members have capabilities to complete that task…. There will be more motives to complete the task. On the other hand, when we have good relationships, we can ask questions with each other. Actually that’s not so scary to ask others and more naturally to ask questions.” (HKY, July 10, 2016)

The findings reflected that prospective teachers were oriented towards teacher collaboration, which are consistent with international and local studies on in-service teachers’ perceptions and practices of collaboration (Vescio, Ross, & Adams, 2008).
4.3. Shared vision
Component 5 “Shared vision” obtained the lowest composite mean score, i.e., M=4.46, SD=0.70, in which one of the items “42. Teachers should share the school’s vision” was of the lowest mean score (M=4.22, SD=0.95). Interview data consistently indicated that prospective teachers did not realize the importance of shared vision. There are diverse views upon teachers’ involvement in building shared vision. Prospective teachers regarded that shared vision is something commonly well-recognized in the field of education.

“Shared vision… it’s not my business! …Any school’s vision is always about something good, usually taking learning-centredness, or student-centredness as the vision… there won’t be many teachers who strongly disagree with such vision.” (JCY, June 29, 2016)

Few criticized that shared vision is abstract to teachers.

“Not many teachers know what school vision is, because not many people can clearly talk about what it is…. Nowadays there are many unclear objectives and many teachers cannot understand what to do and they will not realize their importance.” (CWT, June 24, 2016)

Prospective teachers reckoned that shared vision should be made by those in power. Based on their own teaching practice experience, prospective teachers saw teachers’ influence upon decision-making was little.

“I think vision needs not to be shared as the school vision is mainly developed by the school management board. Teachers actually are just playing a follower role. ... Their influence is just little. Basically they just need to focus on teaching affairs.” (FWK, June 21, 2016)

Prospective teachers commented that vision building should be more dynamic. For prospective teachers, building shared vision was regarded as a kind of liberal action to inspire each other. This prospective teacher said that,

“Probably everyone has his/her own thoughts. ... But there should not be the same pattern to carry out. The teacher possibly can have their own style to teach, and if you must follow what is told, probably this cannot let the teacher unleash his/her potential power.” (LSY, June 28, 2016)

Previous teaching practice experience seemingly affected prospective teachers’ perceptions of PLC. Their experiences were likely more pessimistic and
discouraged them from playing “participatory” leadership roles in schools (York-Barr & Duke, 2004). They still upheld traditional views of leadership, emphasizing “positional” leadership (Dinham, 2005), where socio-cultural factors (i.e., Confucian hierarchical cultures) (Dimmock, 2012) may still affect such perceptions. Hence, there could be dissonances in cultivating the ideals of PLCs (Cannon & Edmondson, 2001).

4.4. Prospective teachers’ perceptions of PLC and demographic variables

Using MANOVA tests, no significant interactional effects were found in relation to gender. Female pre-service teachers generally had higher mean scores in all components than males. Significant interactional effect was found in prospective teachers’ perceptions of Reflective Dialogue according to teaching practicum experience, while those with teaching practicum experience had a higher mean score (M=5.03, SD=0.58) than those without teaching practicum experience in all composite mean scores of the components.

<table>
<thead>
<tr>
<th>Overall Perceptions (Cronbach’s Alpha=.93, N. of items=27)</th>
<th>M</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component 1: Teacher collaboration (Cronbach’s Alpha=.79, N. of items=5)</td>
<td>4.80</td>
<td>0.48</td>
</tr>
<tr>
<td>32. Teachers should plan and work together to search for solutions to address diverse student needs.</td>
<td>4.97</td>
<td>0.80</td>
</tr>
<tr>
<td>33. Teachers should have a variety of opportunities for collective learning through open dialogue.</td>
<td>4.95</td>
<td>0.71</td>
</tr>
<tr>
<td>34. Teachers should learn together and apply the new knowledge to solve problems.</td>
<td>5.08</td>
<td>0.78</td>
</tr>
<tr>
<td>35. Teachers should share with one another their evidence-based approach to improve practice.</td>
<td>4.78</td>
<td>0.74</td>
</tr>
<tr>
<td>40. A collaborative process should exist for developing shared values among teachers.</td>
<td>4.92</td>
<td>0.69</td>
</tr>
<tr>
<td>Component 2: Assessment for learning (Cronbach’s Alpha=.79, N. of items=3)</td>
<td>4.89</td>
<td>0.69</td>
</tr>
<tr>
<td>28. Teachers should set learning targets for individual students.</td>
<td>4.64</td>
<td>0.89</td>
</tr>
<tr>
<td>29. Teachers should ensure students receive constructive feedback about their work.</td>
<td>5.07</td>
<td>0.87</td>
</tr>
<tr>
<td>30. Teachers should regularly monitor the learning and progress of individual students.</td>
<td>4.84</td>
<td>0.88</td>
</tr>
<tr>
<td>Component 3: Student learning (Cronbach’s Alpha=.73, N. of items=4)</td>
<td>4.86</td>
<td>0.54</td>
</tr>
<tr>
<td>26. Teachers should take collective responsibility for student learning.</td>
<td>4.88</td>
<td>0.67</td>
</tr>
<tr>
<td>27. Teachers should create conditions for students to feel the confidence to learn.</td>
<td>5.30</td>
<td>0.69</td>
</tr>
<tr>
<td>31. Teachers should have collegial relationships that reflect commitment to school improvement efforts.</td>
<td>4.64</td>
<td>0.78</td>
</tr>
<tr>
<td>41. Shared values should guide actions and decisions about teaching and learning.</td>
<td>4.62</td>
<td>0.75</td>
</tr>
<tr>
<td>Component 4: Shared leadership (Cronbach’s Alpha=.77, N. of items=4)</td>
<td>4.85</td>
<td>0.62</td>
</tr>
<tr>
<td>48. The school management team should incorporate advice from teachers in decision-making.</td>
<td>4.80</td>
<td>0.95</td>
</tr>
<tr>
<td>49. The school management team should be proactive in addressing areas that need attention.</td>
<td>4.91</td>
<td>0.73</td>
</tr>
<tr>
<td>50. The school management team should share responsibility and rewards for innovative efforts.</td>
<td>4.89</td>
<td>0.74</td>
</tr>
<tr>
<td>52. Decision-making should take place through committees and communication across level and subject areas.</td>
<td>4.80</td>
<td>0.77</td>
</tr>
<tr>
<td>Component 5: Reflective dialogue (Cronbach’s Alpha=.81, N. of items=6)</td>
<td>4.83</td>
<td>0.60</td>
</tr>
<tr>
<td>36. Teachers should share with one another how they actively seek and use feedback from students.</td>
<td>4.89</td>
<td>0.69</td>
</tr>
<tr>
<td>37. Teachers should share with one another how they experiment and innovate in their teaching practice.</td>
<td>4.87</td>
<td>0.75</td>
</tr>
<tr>
<td>38. Teachers should share with one another their reflections about their learning.</td>
<td>4.67</td>
<td>0.86</td>
</tr>
<tr>
<td>39. Teachers should share with one another what they have learnt from the professional development they attended/experienced.</td>
<td>4.88</td>
<td>0.75</td>
</tr>
<tr>
<td>46. Caring relationships should exist among teachers that are built on trust and respect.</td>
<td>5.03</td>
<td>0.86</td>
</tr>
<tr>
<td>51. The school management team should share power and authority with teachers.</td>
<td>4.63</td>
<td>1.02</td>
</tr>
<tr>
<td>Component 6: Shared vision (Cronbach’s Alpha=.87, N. of items=5)</td>
<td>4.46</td>
<td>0.70</td>
</tr>
<tr>
<td>42. Teachers should share the school’s vision.</td>
<td>4.22</td>
<td>0.95</td>
</tr>
<tr>
<td>43. Decisions should be made in alignment with the school’s vision and values.</td>
<td>4.26</td>
<td>0.79</td>
</tr>
</tbody>
</table>
44. A collaborative process should exist for developing a shared vision among teachers. $M = 4.62$, $S.D. = 0.89$

45. The school should implement policies and programmes that are aligned with the school’s vision. $M = 4.58$, $S.D. = 0.80$

47. Teachers should exhibit a unified effort to embed change into the culture of the school. $M = 4.61$, $S.D. = 0.87$

Table 1: Prospective teachers’ perceptions of PLC (N=76) (To 2 d.p.)

5. CONCLUSION AND IMPLICATIONS.

The study demonstrated that prospective teachers generally held positive attitudes towards PLC. Prospective teachers regarded the importance of teacher but they less valued shared vision. The study helped extend our understanding of prospective teachers’ perceptions of PLCs and know what teacher educators and schools can provide for building up prospective teachers’ leadership. There should be more attention to teacher development regarding the concepts and practices of PLCs in schools. First, as teaching practicum experiences could be a significant determinant of teachers’ perceptions of PLC, there should be opportunities for critical reflections upon teaching practicum experiences to help them generate more “realistic” ways in PLC engagement. Secondly, more attention should be given to prospective teachers’ needs (i.e., high recognition of teacher collaboration but low in shared vision) in order to support prospective teachers’ readiness in PLC engagement, while prospective teachers generally agreed with teacher collaboration, developing soft skills in collaboration is a good entry point, which can be built-in during teacher education programmes (Ruys, van Keer, & Aelterman, 2011) while the idea of shared vision should be included and prospective teachers can have opportunities to ask for clarifications and reflect upon their own roles in schools (Meschede, Fiebranz, Möller, & Steffensky, 2017).

Further development are suggested to improve the study. First, as there was a small number of sample in this study (i.e., N=76), a larger sample can be recruited for enhancing the generalizability of the study. Second, seeing that significant differences were found in perceptions of PLC according to teaching practicum experiences, further inquiries, using multi-method (e.g., on-site teaching practicum observation) and multi-perspectives (e.g., teaching practicum mentors), can be done to explore how the realities (school experiences) affect prospective teachers’ perceptions.

ACKNOWLEDGEMENTS

The authors would like to express their deepest gratitude to the participants in the study.
REFERENCES


“SHARED VISION? IT’S NOT MY BUSINESS!” HONG KONG
PROSPECTIVE TEACHERS’ PERCEPTIONS OF PROFESSIONAL
LEARNING COMMUNITIES (PLC)

LEE, P., GILLESPIE, N., MANN, L., & WEARING, A. (2010). Leadership and


Prospective teachers’ teaching beliefs about differentiated instruction in Hong Kong and Turkey

Sally Wai-Yan Wan¹, and Ruhan Karadag²

¹Faculty of Education, The Chinese University of Hong Kong
sallywywan@cuhk.edu.hk
²Faculty of Education, Adıyaman University, Turkey
rkaradag@adiyaman.edu.tr

ABSTRACT
Differentiated instruction (DI) is widely accepted and considered as an evidence-based approach to catering to learner diversity in the official educational policies over the global world. Yet scarce research has been done to understand teaching beliefs upon differentiated instruction in different cultural settings. Differentiated instruction has been promoted in the curriculum policies in Hong Kong and Turkey. This is a quantitative study to investigate and compare Hong Kong and Turkish student teachers’ teaching beliefs regarding differentiated instruction in two different cultural contexts - Asia and Europe. Data were collected with a 6-point Likert scale instrument of teaching beliefs upon differentiated instruction. Descriptive data analysis was done, including frequency, percentage, standard deviation, arithmetic average. Inferential data analysis was carried out with the use of ANOVA tests to explore relationship between regions (independent variable) and teaching beliefs (dependent variable). Findings include comparisons of teaching beliefs between Hong Kong and Turkish prospective teachers. Implications for teacher education and future research directions are discussed.

KEYWORDS: differentiated instruction (DI), teaching belief, prospective teachers, Hong Kong, Turkey, comparative study

1. INTRODUCTION
Differentiated instruction is a commonly accepted teaching approach in catering for learner diversity in official educational documents (Lawrence-Brown, 2004; UNESCO, 2004). Differentiated instruction is believed to be an effective strategy in response to the needs of students in inclusive education through structuring and modifying the curriculum contents, processes, products, learning environment and assessment with reference to students’ readiness, learning profiles and interests (Gregory & Chapman, 2012; Roberts & Inman, 2009; Tomlinson & Allan, 2000; Tomlinson & Strickland, 2005; UNESCO, 2004). In differentiated instruction, students are expected to
maximize their growth and achieve the learning goals in mixed-ability classrooms (Rock, Gregg, Ellis, & Gable, 2008). It is noted that differentiated instruction is not the same as personalized learning that focuses on the customization of learning designs for every individual student. Rather, teachers adjust the curriculum and help the whole class of students to achieve the standards when doing differentiated instruction (Tomlinson & Allan, 2000). Various studies indicated the effectiveness of applying differentiated instruction in supporting student learning (e.g., Cusumano & Mueller, 2007; Eysink, Hulsbeek, & Gijlers, 2017; Reis et al., 201; Karadag & Yasar, 2010). Nevertheless, different studies indicated that teacher preparation for doing differentiated instruction was weak (e.g., Schumm & Vaughn, 1995), while there lacked sufficient information in knowing prospective teachers’ needs in teacher education regarding differentiated instruction (Filippatou, Vassilaki, & Kaldi, 2016; Karip, 2016). This study attempted to explore prospective teachers’ teaching beliefs upon differentiated instruction, which serves as a baseline for mediating teacher preparation for the facilitation and support of differentiated instruction, with one key research question guiding the study: What are prospective teachers’ teaching beliefs upon differentiated instruction?

2. TEACHING BELIEFS AND DIFFERENTIATED INSTRUCTION
Teaching beliefs are essential in understanding and improving learning and teaching, which “are closely linked to teachers’ strategies for coping with challenges in their daily professional life and to their general well-being, and they shape students’ learning environment and influence student motivation and achievement” (OECD, 2009, p.89). Few studies attempted to study teaching beliefs regarding differentiated instruction (e.g., Dixon, Yssel, McConnell, & Hardin, 2014; Wan, 2016; Wertheim & Leyser, 2002). Dixon et al. (2014) found that teacher professional development was positively associated with teachers’ efficacy beliefs. Wan (2016) revealed positive changes in teaching efficacy and teaching beliefs concerning differentiated instruction upon the completion of a 13-week course about application of differentiated instruction strategies. Wertheim & Leyser (2002) found that prospective teachers were reluctant to use differentiated instruction although they showed their intentions towards curriculum adaptations for all students.

3. CONTEXT OF STUDY
3.1. Hong Kong
The recent curriculum reform in Hong Kong puts differentiated instruction as one of the highlights in catering for learner diversity. However, only few studies were done to explore how prospective teachers think about differentiated instruction in mixed-ability classrooms, although some studies
were carried out to explore teachers’ implementation in certain subject areas such as English language education (e.g., Chan, 2009; Wut, Lau, Kong, & Chan, 2013). Instead, most of the studies focused on seeking prospective teachers’ teaching beliefs about inclusive education or special education (e.g., Sharma, Forlin, & Loreman, 2008).

3.2. Turkey
In Turkey, differentiated instruction is one of the key areas in in teacher education programmes, which cover the topics about the use of differentiated instruction strategies (e.g., Bümen, 2007), while few studies inquired the use of differentiated instruction in Turkish mixed-ability classrooms (e.g., Avci, Yuksel, Soyer, & Balikcioglu, 2009; Karadag & Yasar, 2010; Valiandes & Tarman, 2011).

4. METHODOLOGY
4.1. Research settings and participants
A total of 77 Hong Kong prospective teachers and 173 Turkish prospective teachers participated in the study respectively (Appendix 1), who enrolled in the bachelor of education programmes, as offered by public universities in both regions. Due to convenient sampling, Year 1 and Year 4 prospective teachers were invited by the first researcher in Hong Kong whilst Year 4 Turkish prospective teachers were invited by the second research in Turkey, who all underwent teaching practicum experience. It is noted that there is no Year 5 in the bachelor of education programme in Turkey and teaching practicum experience occur in Year 4 and Year 5 in the Hong Kong bachelor of education programme.

4.2. Data collection
The study used an online survey containing three parts, including Part 1 Teaching beliefs upon differentiated instruction, Part 2 Teaching efficacy, and Part 3 Perceptions of preparedness in using differentiated instruction strategies. This paper only focused on the report of the findings of Part 1. Consent was obtained from prospective teachers before the start of administering the survey. It is remarked that the survey was made bilingual according to the mother tongue language (i.e., Chinese and Turkish) for both regions.

4.3. Data analysis
The survey data was computed with the use of the Statistics Package for Social Sciences (SPSS). To help ensure construct validity, three dimensions were identified using Principal Component Analysis (PCA). Internal consistency was
measured in each dimension. One of the dimension was found of low reliability, i.e., <0.03, and was removed from the survey scale. So two key dimensions were retained for further analysis, namely Component 1 Curriculum planning and Component 2 Teacher expectation. Descriptive analysis and inferential analysis were done, including mean scores, frequency and ANOVA analysis.

5. RESULTS
Hong Kong prospective teachers were less oriented towards differentiated instruction than Turkish prospective teachers. Turkish prospective teachers generally had higher composite mean scores than Hong Kong prospective teachers in Component 1 Curriculum planning and Component 2 Teacher expectation, while both groups had higher mean scores in Component 2 Teacher expectation (Hong Kong: M=4.42; Turkey: M=4.66), when compared with Component 1 Curriculum planning (Hong Kong: M=4.22; Turkey: M=4.51). This represents that both groups of prospective teachers upheld high expectations upon student learning but they may not have sufficient curriculum and pedagogical knowledge or skills in the application of differentiated instruction strategies. Very interestingly, amongst the survey items, Hong Kong prospective teachers had only two items, which had relatively higher mean scores than Turkish prospective teachers. They included: “A6. If I teach and visually display context specific vocabulary, students’ writing will be enhanced” (Hong Kong: M=4.52; Turkey: M=4.51), where more than 85% Hong Kong prospective teachers tended to agree with this item. “A12. All students can learn, given an appropriate educational environment” (Hong Kong: M=4.92; Turkey: M=4.82), where more than 90% Hong Kong prospective teachers more likely agreed with this item. This may be related to the local learning environment, where Hong Kong teachers put more emphasis on vocabulary teaching for learning how to write (Lee, 2004; Mohan & Lo, 1985) while they felt hard to influence environmental factors such as family support, where parents culturally play important roles in influencing student learning in the Chinese society (Salili, Choi, & Lai, 2001).

Both Hong Kong and Turkish prospective teachers had the highest mean score in the item “A8. Effective classroom management improves teaching and learning”, with M=5.27 (SD=1.10) and M=5.51 (SD=0.95). This finding is consistent with other studies in the two regions (e.g., Wan, 2016). This re-emphasizes the importance of inclusion of the topic about classroom management in learning the application of differentiated instruction in mixed-ability classrooms, which contain great number of students in both regions (Cheung & Wong, 2012; Cinoğlu, 2009; Woodcock & Reupert, 2012).
## PROSPECTIVE TEACHERS’ TEACHING BELIEFS ABOUT DIFFERENTIATED INSTRUCTION IN HONG KONG AND TURKEY

<table>
<thead>
<tr>
<th>Component 1: Curriculum planning (Cronbach’s Alpha=0.83, N=10)</th>
<th>Hong Kong (N=77)</th>
<th>Turkey (N=173)</th>
<th>Overall (N=250)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>---</td>
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<td>----</td>
</tr>
<tr>
<td>Overall teaching beliefs (Cronbach’s Alpha=0.84, N=13)</td>
<td>4.22</td>
<td>0.61</td>
<td>4.51</td>
</tr>
<tr>
<td>A1. I can assist some students to learn with the use of carefully prepared prompts.</td>
<td>4.43</td>
<td>1.12</td>
<td>4.76</td>
</tr>
<tr>
<td>A2. A student’s comprehension of text will be dependent on activating prior knowledge.</td>
<td>4.45</td>
<td>1.07</td>
<td>4.85</td>
</tr>
<tr>
<td>A4. Students who have difficulty maintaining concentration and completing a task and therefore develop more effective routines.</td>
<td>4.09</td>
<td>1.11</td>
<td>4.82</td>
</tr>
<tr>
<td>A5. When I help some students make links and build on previous knowledge, I am encouraging success in learning.</td>
<td>4.97</td>
<td>0.95</td>
<td>5.23</td>
</tr>
<tr>
<td>A6. If I teach and visually display context specific vocabulary, students’ writing will be enhanced.</td>
<td>4.52</td>
<td>1.05</td>
<td>4.51</td>
</tr>
<tr>
<td>A7. Prior to teaching a new skill, it is necessary to analyse a task and ascertain the knowledge and skills that are required.</td>
<td>4.71</td>
<td>0.90</td>
<td>4.95</td>
</tr>
<tr>
<td>A8. Effective classroom management improves teaching and learning.</td>
<td>5.27</td>
<td>1.10</td>
<td>5.51</td>
</tr>
<tr>
<td>A9. If I provide graphic organizers for students to record their work, it will lead to better understanding of material.</td>
<td>4.65</td>
<td>0.98</td>
<td>5.30</td>
</tr>
<tr>
<td>A10. Cultural diversity among students will lead to different interpretations of the same text.</td>
<td>4.71</td>
<td>1.00</td>
<td>4.97</td>
</tr>
<tr>
<td>A11. By posing different questions, I can test understanding at various levels.</td>
<td>4.87</td>
<td>1.04</td>
<td>5.05</td>
</tr>
</tbody>
</table>

## Component 2: Teacher expectation (Cronbach’s Alpha=0.68, N=3) | Hong Kong (N=77) | Turkey (N=173) | Overall (N=250) |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
<td>----</td>
</tr>
<tr>
<td>A12. All students can learn, given an appropriate educational environment.</td>
<td>4.92</td>
<td>1.02</td>
<td>4.82</td>
</tr>
<tr>
<td>A13. All students can be successful in my class.</td>
<td>4.39</td>
<td>1.07</td>
<td>4.49</td>
</tr>
<tr>
<td>A14. I can ensure that all students experience success by adapting the curriculum.</td>
<td>3.96</td>
<td>1.16</td>
<td>4.68</td>
</tr>
</tbody>
</table>

Table 1: Comparison between Hong Kong and Turkish prospective teachers’ teaching beliefs upon differentiation
Applying ANOVA analysis, significant difference was found in prospective teachers’ teaching beliefs upon differentiated instruction by region, where $F=10.90$ (Table 3). As a whole, Turkish prospective teachers were more oriented towards differentiated instruction ($M=4.55$, $SD=0.57$) while Hong Kong prospective teachers had an overall mean score of 4.27 ($SD=0.61$).
Turkish prospective teachers had much more items with higher mean scores than those of Hong Kong prospective teachers, who only had two items (i.e., A6, A12) with higher mean scores than those of Turkish. This revealed that Turkish teachers were inclined towards the underlying principles of differentiated instruction. Such a difference may implicitly reflect that cultural difference can be an influential factor in affecting teachers’ beliefs. This may be related to the sociocultural factors that impact how teachers think about teaching and learning and their roles in supporting learners. However, this difference may be related to the current teacher education programmes that these two groups of prospective teachers are undertaking in universities.

Furthermore, significant difference was found between Component 1 “Curriculum planning” and regions, where Turkish prospective teachers generally more likely agreed with Component 1 “Curriculum planning”, when compared with Hong Kong prospective teachers (M=4.22, SD=0.61). On the other hand, there was no significant difference between Component 2 “Teacher expectation” and regions. Even so, Turkish prospective teachers had higher composite mean score in Component 2 Teacher expectations than Hong Kong prospective teachers, where Hong Kong prospective teachers had only one item with a slightly higher mean score out of the three items, that is, “A12. All students can learn, given an appropriate educational environment” (M=4.92, SD=1.02) whilst Turkish prospective teachers had relatively higher mean scores over the other two items (i.e., A13, A14). In other words, Hong Kong prospective generally had lower teacher expectations concerning student learning and tend to believe in the influence of the environment, instead of their own personal capabilities to control the effectiveness of student learning. This finding is quite consistent with the other studies in Hong Kong (e.g., Wan, 2016), where Hong Kong teachers’ personal teaching efficacy was relatively weaker.

6. IMPLICATIONS AND CONCLUSION

The study contributed to further understandings about prospective teachers’ teaching beliefs upon differentiated instruction. Significant difference was found in prospective teachers’ teaching beliefs. This finding articulated with other studies related to teaching beliefs across different socio-cultures (Sharma, Forlin, Loreman, & Earle, 2006). This reflects that when designing teacher education programmes, socio-cultural backgrounds should be taken into account in determining the foci of the contents. However, based on the findings of this study, the learning needs of prospective teachers in both regions include classroom management and pedagogical designs should be addressed in teacher education programmes. On supporting prospective
teachers’ application of differentiated instruction, future teacher development should be done with these foci for follow-ups and guidance when prospective teachers go into the teaching profession in schools. There are some limitations in the study. First of all, as the sample of the study was based on convenient sampling method, the number of participants was not equal and this may affect the generalizability of the study. Second, there was no in-depth investigation of how teacher education programmes that prospective teachers have undergone, such as what kinds of courses or modules were learnt, whether assessment criteria of teaching practicum include catering for learner differences, and so on.

REFERENCES


Prospective Teachers’ Teaching Beliefs about Differentiated Instruction in Hong Kong and Turkey


Appendices

Appendix 1. Demographic information about participants

<table>
<thead>
<tr>
<th></th>
<th>Hong Kong</th>
<th>Turkey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>33</td>
<td>105</td>
</tr>
<tr>
<td>Female</td>
<td>44</td>
<td>68</td>
</tr>
<tr>
<td>Year of study</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 1</td>
<td>29</td>
<td>0</td>
</tr>
<tr>
<td>Year 2</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Year 3</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Year 4</td>
<td>28</td>
<td>173</td>
</tr>
<tr>
<td>Year 5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Teaching practicum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>51</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>26</td>
<td>173</td>
</tr>
</tbody>
</table>

Appendix 2. Rotated Component Matrix
<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1. I can assist some students to learn with the use of carefully prepared prompts.</td>
<td>.634</td>
<td>.128</td>
<td>.148</td>
</tr>
<tr>
<td>A2. A student’s comprehension of text will be dependent on activating prior knowledge.</td>
<td>.646</td>
<td>.085</td>
<td>.133</td>
</tr>
<tr>
<td>A4. Students who have difficulty maintaining concentration and completing a task and therefore develop more effective routines.</td>
<td>.550</td>
<td>.290</td>
<td>.328</td>
</tr>
<tr>
<td>A5. When I help some students make links and build on previous knowledge, I am encouraging success in learning.</td>
<td>.658</td>
<td>.217</td>
<td>-.300</td>
</tr>
<tr>
<td>A6. If I teach and visually display context specific vocabulary, students’ writing will be enhanced.</td>
<td>.449</td>
<td>.172</td>
<td>-.373</td>
</tr>
<tr>
<td>A7. Prior to teaching a new skill, it is necessary to analyse a task and ascertain the knowledge and skills that are required.</td>
<td>.642</td>
<td>-.007</td>
<td>-.255</td>
</tr>
<tr>
<td>A8. Effective classroom management improves teaching and learning.</td>
<td>.715</td>
<td>.220</td>
<td>.035</td>
</tr>
<tr>
<td>A9. If I provide graphic organizers for students to record their work, it will lead to better understanding of material.</td>
<td>.664</td>
<td>.143</td>
<td>.013</td>
</tr>
<tr>
<td>A10. Cultural diversity among students will lead to different interpretations of the same text.</td>
<td>.596</td>
<td>-.039</td>
<td>.174</td>
</tr>
<tr>
<td>A11. By posing different questions, I can test understanding at various levels.</td>
<td>.630</td>
<td>.220</td>
<td>.078</td>
</tr>
<tr>
<td>A12. All students can learn, given an appropriate educational environment.</td>
<td>.160</td>
<td>.792</td>
<td>-.052</td>
</tr>
<tr>
<td>A13. All students can be successful in my class.</td>
<td>.047</td>
<td>.804</td>
<td>.031</td>
</tr>
<tr>
<td>A14. I can ensure that all students experience success by adapting the curriculum.</td>
<td>.270</td>
<td>.663</td>
<td>-.100</td>
</tr>
<tr>
<td>A15. If I allow some students to present assignments in a variety of ways, I may be giving some students an unfair disadvantage.</td>
<td>.018</td>
<td>.070</td>
<td>.758</td>
</tr>
<tr>
<td>A16. Students with learning difficulties hold back students who are not impaired.</td>
<td>-.107</td>
<td>.074</td>
<td>-.369</td>
</tr>
</tbody>
</table>

**Extraction Method:** Principal Component Analysis.  
**Rotation Method:** Varimax with Kaiser Normalization.  
**Rotation converged in 4 iterations.**
## PROSPECTIVE TEACHERS’ TEACHING BELIEFS ABOUT DIFFERENTIATED INSTRUCTION IN HONG KONG AND TURKEY

### Appendix 3. Item-Total Statistics

<table>
<thead>
<tr>
<th>Statement</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1. I can assist some students to learn with the use of carefully prepared prompts.</td>
<td>65.06</td>
<td>62.607</td>
<td>.481</td>
<td>.759</td>
</tr>
<tr>
<td>A2. A student’s comprehension of text will be dependent on activating prior knowledge.</td>
<td>64.99</td>
<td>62.751</td>
<td>.496</td>
<td>.758</td>
</tr>
<tr>
<td>A3. If I allow some students to present assignments in a variety of ways, I may be giving some students an unfair disadvantage.</td>
<td>66.06</td>
<td>69.153</td>
<td>.036</td>
<td>.803</td>
</tr>
<tr>
<td>A4. Students who have difficulty maintaining concentration and completing a task and therefore develop more effective routines.</td>
<td>65.12</td>
<td>62.045</td>
<td>.526</td>
<td>.755</td>
</tr>
<tr>
<td>A5. When I help some students make links and build on previous knowledge, I am encouraging success in learning.</td>
<td>64.56</td>
<td>62.038</td>
<td>.562</td>
<td>.753</td>
</tr>
<tr>
<td>A6. If I teach and visually display context specific vocabulary, students’ writing will be enhanced.</td>
<td>65.20</td>
<td>63.141</td>
<td>.362</td>
<td>.769</td>
</tr>
<tr>
<td>A7. Prior to teaching a new skill, it is necessary to analyse a task and ascertain the knowledge and skills that are required.</td>
<td>64.84</td>
<td>63.800</td>
<td>.446</td>
<td>.762</td>
</tr>
<tr>
<td>A8. Effective classroom management improves teaching and learning.</td>
<td>64.28</td>
<td>61.606</td>
<td>.617</td>
<td>.749</td>
</tr>
<tr>
<td>A9. If I provide graphic organizers for students to record their work, it will lead to better understanding of material.</td>
<td>64.62</td>
<td>63.450</td>
<td>.515</td>
<td>.758</td>
</tr>
<tr>
<td>A10. Cultural diversity among students will lead to different interpretations of the same text.</td>
<td>64.83</td>
<td>64.488</td>
<td>.414</td>
<td>.765</td>
</tr>
<tr>
<td>A11. By posing different questions, I can test understanding at various levels.</td>
<td>64.72</td>
<td>63.189</td>
<td>.325</td>
<td>.757</td>
</tr>
<tr>
<td>A12. All students can learn, given an appropriate educational environment.</td>
<td>64.86</td>
<td>63.234</td>
<td>.424</td>
<td>.763</td>
</tr>
<tr>
<td>A13. All students can be successful in my class.</td>
<td>65.26</td>
<td>64.312</td>
<td>.325</td>
<td>.772</td>
</tr>
<tr>
<td>A14. I can ensure that all students experience success by adapting the curriculum.</td>
<td>65.26</td>
<td>62.531</td>
<td>.445</td>
<td>.761</td>
</tr>
<tr>
<td>A15. Students with learning difficulties hold back students who are not impaired.</td>
<td>66.38</td>
<td>71.400</td>
<td>-.041</td>
<td>.907</td>
</tr>
</tbody>
</table>
Jottings for the modernization of professional practices in the first stages of the training of mathematics teachers. A screening by nodes of praxeological configuration

Juan Albadan

Universidad Distrital Francisco José de Caldas
jalbadanv@udistrital.edu.co; Pablo.albadan@gmail.com

ABSTRACT
The objective of this article is to present some jottings that are required for the modernization of professional practices of the mathematics teacher. Based on the premise that practices are conceived under reflection but become concrete in action; it is a necessity to acknowledge the praxeologies, considering logos and praxis and its 4 development elements. Following this line of thought, it exposes the need of creating bonds between meaning and sense, fostering the professional identity of the teacher. It deals with the arose problematic concern, of the insufficiency caused by the curricular fragmentation, linear systems and practice communities it is immersed in. As a result, the need of resignifying professional practices which are restricted to the replica of theories and limited to disciplinary borderlines emerges. Thus, the notion of praxeologies with complex views and the notion of attractor for the consolidation of professional practices are considered. This implies to associate akin praxeologies (mathematics, didactics, pedagogy, and contextual among others) as orbits that relate to the attractor “professional practices”; going against the reductionism in which teacher’s professional practices are bemused with instructor practices. Hence, acknowledging the need of rethinking curricular organizers of initial university training programs concerning structural questionings and augmenting the attractor’s percentage value.

KEYWORDS: professional practices, initial training of mathematics teachers, professional identity, praxeologies, attractor.

1. INTRODUCTION
Mathematical education as a contributory transdisciplinary effort (Nicolescu, 1999), according to Morin, to a complex commitment, emerges from the systemic that attains all science but overcomes them in quantity and complexity in terms of the relations that emerge; there, a complex system is constituted (García, 2006). This system considers that professional practices do not limit to repeating theoretical and methodological constructs. On the contrary, they belong to an ecology that gathers, mutes, adapts and transforms -as well as are transformed- according to geographical, social and intersubjective space in
which they flourish. With this premises in mind, this text presents some elements of consideration and modernization in mathematics teachers’ training rescuing the components of the professional practice, particularly professional identity, understanding it as complex systems and not as static linear ones. Attending on the question of PhD research: *How can a complex architecture be for the curricular design of the first stages of the training of mathematics teachers in Colombia that contributes to the social network in which this one is carried out?* Developed by the author, in particular, the related to the professional practices.

2. THEORETICAL FRAMEWORK

The spectrum of professional practice of a mathematics teacher develops and privileges its action to a community of practice -COP- (Wenger, 2001). In general terms, along education history, COP’s have centered on professional practices in places like the classroom and the school. Nonetheless, the understanding that one might have of them is not necessarily equivalent. According to the perspective that a COP might bear, to what is considered authentic and the didactic intentions it endows; planning and managing for teacher’s training will take the form of an open and complex system or of a linear and enclosed one. In other words, the conception of education that prevails directly affects the training that is offered since this affects professional development in a specific community of practice.

The study of professional practices of the mathematics teacher, according to Bishop (1988) and Skovmose (1994), allows to infer that the COP’s in which they have been generated, are circumscribed in linear and enclosed systems. According to Aguerrondo and Vezub (2003), this is clearly seen when teachers are observed in their initial practices (as students or novice teachers); when they consider an excess of theoretical aspects unrelated to the reality they are facing; definitely the estrangement in which training was offered does not reflect the abutment of the reality they face.

The latter recognizes that the whole is greater than the parts, and that teacher training has focused, in excess, on studying the parts, leaving the whole aside since it is assumed as additive. This call is an initial indicative that the comprehension of professional practices corresponds to the study of a complex system, it works according to interacting processes that cannot be abridged nor decomposed. This means that it is superadditive, not additive (García, 2006). This means, we are facing professional practices understood as dialectic construction.

For Díaz (2003) practices are a possible object of study, according to their nature, as ersatz and artificial or as authentic. The former, understood as those “in which a rupture is expressed between the *know what* and the *know how*”. (p. 3) and the latter “simply defined as the ordinary cultural practices”. (Brown,
Jottings for the Modernization of Professional Practices in the First Stages of the Training of Mathematics Teachers. A Screening by Nodes of Praxeological Configuration

Collins y Duguid, 1989, p. 34) cited in Díaz, B. p. 3, 2003). In sum, the first understanding of practices deals with a linear, enclosed system; while the second one is associated with an open, complex one. However, every professional practice system, regardless of its affiliation, links obligatorily to what Chevallard (1999) has called praxeologies, understood as the professional activities related to the tasks of being a teacher and its professional practice. Two levels are indissolubly adjoined, the first one is the practice level, praxis, associated with two basic elements: the tasks and the techniques. These offer sense to the know how and the know what. The second, the reasoning on the practice, logos, in which two other elements circumscribe: technology and theory, as noted by Servín (nd). Lastly, Vezub in his studies on teachers’ training in Latin America, found that the professional development of teachers, therefore, professional practices, present a bountiful number of issues that may be grouped in 4 macro-dimensions. These are: “the institutional organization and the regulation of training, curricular aspects, the models and training approaches and; the trainers, the teachers of teaching training” (Vezub, p. 6, 2007). Consequently, if the transverse axis of the professional practices in the four aforementioned dimensions is meant to be the teachers’ problem solving; a complex, unclosed system that involves dynamic systems is consolidated. Subsequently, these practices are within a system that is not random nor deterministic; it is a chaotic one, in which they behave as an attractor of diverse praxeologies, which revolve around mathematics teachers’ training. Therefore, they are considered: “anything in which something stabilizes in time” (Stewart, 1991). Likewise, Lorenz (1995) understands the attractor as “the graphic representation of the phase space” (Alvarez, 2005) which implies to understand it as a collection of points (states) that globally agglomerate and stabilize the system, even when it presents local instabilities.

3. Methodology.
This investigation assumes a transdisciplinary perspective associated to a socio-critical paradigm; and, develops from an experimental nature. In order to achieve this, it consolidates a mix approach (Creswell & Plano; Clark, 2007; Tashakkori & Creswell, 2007, 2008) in an observational and correlational analysis, from the triangulation of information and theories (Tashakkori & Teddlie, 2003) within the documental revision (F1), carrying out perception surveys on professional practices and its meaning (F2), development of mathematics teacher student’s biographies in different levels and education establishments (F3), the development of semi-structured interviews with in
training and in practice teachers (F4), the quantification of the estimation of levels of association among the fields of study (F5), and the construction of a complex curricular proposal (F6).

This paper presents results of the professional practices as a complex system and attractor of praxeological configurations, are stated as partial results of F1 and F3; these components were developed from the second term of 2015 to the first term of 2017, with statistic sample of 75 training teachers of 2 universities.

4. RESULTS.

After revising the documental analysis (F1) and the biographical section (F3) with mathematics teacher students, the following partial results may be acknowledged:

- Related to institutional organization and training regulations:

Being a mathematics teacher in Colombia only achieved a professional status in the 70’s (Vezub, 2003, 2007; Guacaneme et al, 2011; Albadan, 2017), that means, it is quite young as a complex system and does not completely correspond with this definition. Accordingly, the practices carried out before the mentioned milestone find their meaning and sense linked to ersatz and artificial practices; thus, their role embodies the replication of alienating models that are not consciously adopted by the novice and therefore, they lack of authenticity for those incoming to a COP.

As a consequence, the curricular organization, in general terms, which serves for professional practices during training are constructed with a complex concern but with raw materials that turn to be programmed and linear. These have constituted the tradition in Colombia for more than a century; a contradictory event per se. For this reason, it is interesting to observe that 85% of students in their biographies reduce their professional practice to their teaching practice; that is to know and teach mathematics. For example: “I want to be a mathematics teacher to teach mathematics (E5). To be a mathematics teacher is to know mathematics and to be able to transmit that (E35). The most important seminars -subjects- are mathematics’ (E1, E7, E15, E40 and others)”

- Related to models and trainers

Even today, universities dedicated to give instruction on professional practices of mathematics teachers are in the struggle between instructing vs. coaching; as can be seen in the revision of scope and sequences. This implies that it hasn’t
been understood a model in which training is embedded in the relation knowledge-transformation (Gil, 2015). This is portrayed when going over seminars that belong to knowledge branches (mathematics, didactics, pedagogy and practices); however, comprehensions and requirements of the relations implied are non-existent nor of the explicit pretensions. Besides, a percentage unbalance is kept among the aforementioned dimensions, León backs this when studying 25 curricular organizations in Colombia, finding that in average “39.07% of subjects related to curricular proposals correspond to mathematical training, 21.47% to professional knowledge, 11.66% to training on didactics, 10.97% to pedagogical training, 5.48% to practice, and 5.40% to research training”. (León et al, p.64. 2013)

The latter, reveals the existent rupture between the praxeologies conveyed in the professional practices. Accordingly, the model is restraint to the logos, and has left as homework, to the student, the praxis. And, what we call praxis circumscribes to the mathematician’s technique and task; rather than to the mathematics educator’s practice leaving aside the principle of professional identity, based on the trainer’s beliefs. Such insufficiencies indicate that professional practices have not been able to evolve into a didactic system that acknowledges, as mentioned by Díaz (2003), actions of cultural relevance and outturns social activity that the former promote during training (Derry, Levin y Schauble, 1995). In short, we have not made possible the shift to complex systems and to its configuration of praxeological nodes.

5. IMPLICATIONS/DISCUSSION.

The discussion, deep inside, emerges when professional practices are understood as non-linear systems, because this would imply to initiate a study of multiple relations and infinite consequences when posing a problem and its solutions are kept within the attractor “professional practices”. On the same token, considering it and the orbits that surround it (the mathematical, didactic, and pedagogic praxeo logies) goes along with the impossibility of controlling all the variables that may come up, confirming that professional identity is only possible form the subject’s mutation and evolution. Thus, the debate that arises is: How may universities configure a professional practice system, in teachers training programs, that considers global stability but is also willing to assume the local instabilities in a finite space of time? An early answer would imply a change of curricular organizers.
6. CONCLUSIONS

Professional practices of mathematics teachers must be configured as didactic organization, hence, they should overcome empiric and spontaneous praxeologies of the teacher (Bosch y Gascón, 2001) and understand the didactic codetermination (Chevallard, 2001 y 2002), becoming an attractor of praxeologies. Accordingly, they must be designated from punctual, local, global, disciplinary and didactic levels of action which have as a methodological constructor problem solving. The latter, serves, as well, as a transversal axis to the 4 macro-dimensions in which professional practices may be configured. In like manner, it is necessary to carry out actions that invite to bring down the confusion between mathematics teacher professional practice = mathematical instructing practices. 

Professional identity, (Gysling, 1992; Catonnar, 2001; Lasky, 2005; Sloan, 2006; Vezub, 2007) as a autobiographic, constitutive, mutable, and dynamic process is the one that allows defining themselves and the others (Lasky, 2005). In other words, professional practices require understanding that their action does not fall, in an exclusive manner, on official institutions of traditional direct encounter. This is how, universities must incorporate designs in which professional practices may and must be directed towards other spaces, rarely pondered under schools’ traditional view; among others in prisons, publishing houses, research groups, and hospitals just to name a few. Foreseeing how professional practices may look like in settings different from traditional classrooms; configurations that as an attractor node assume mathematical, didactic, methodological, pedagogical, and social praxeologies are required. A curricular reorganization is needed, in terms of dimensions (orbits - praxeologies-) and professional practices (attractor) which connect empirical, spontaneous praxeologies of the teacher with the construction of the professional identity as a dual process. Moving from the restrained and programmatic seminar to the reflexive professionalizing action that recognizes the role of mathematics as a social construction. Consequently, questionings that may serve as curricular organizers are: What mathematics does a mathematics teacher require to know? What sceneries must the teacher have in mind? What is the difference between instructor practices and professional practices? Which are the instances for contentment of a mathematics teacher? Which curricular organizers are required in professional practices? What do we require, as trainers, to get into professional practices modernization?

In the end, it is imperative that initial training programs augment the percentage of the professional practices attractor along the program of studies, in pursuance of reducing the existent fracture.
Jottings for the modernization of professional practices in the first stages of the training of mathematics teachers. A screening by nodes of praxeological configuration

References


JOTTINGS FOR THE MODERNIZATION OF PROFESSIONAL PRACTICES IN THE FIRST STAGES OF THE TRAINING OF MATHEMATICS TEACHERS: A SCREENING BY NODES OF PRAXEOLOGICAL CONFIGURATION


Theory becomes practice in community: Applying community of practice theory to doctoral education

Özge Hacifazlioglu¹, Kate Olson², David Lee Carlson³, and Christopher Michael Clark⁴

1Istanbul Kultur University
ozgehacifazlioglu@gmail.com
2George Mason University
olson.kate1@gmail.com
3Arizona State University
dlcarteron2@gmail.com
4Michigan State University
cmclark8@gmail.com

ABSTRACT
This paper presents accounts of three complementary ways in which Community of Practice Theory was adapted to organize and regulate an innovative program of doctoral study for experienced education leaders. The three doctoral program management domains in which Community of Practice Theory was applied are: a) program co-construction by faculty members while implementing and refining the doctoral program; b) organization of doctoral students into Leader-Scholar Communities for action research advising and dissertation completion; and c) identity development for faculty members while team-teaching. Each narrative reflects the other two, since the general principles of Community of Practice Theory explicitly guided program design, behavior, and discourse. At the same time, the narratives have their own distinctive flavors and textures, demonstrating that abstract general theory takes varied forms when it is interpreted, adapted and realized under real world constraints.

KEYWORDS: community of practice, doctorate program, educational leadership, stewards of practice

1. INTRODUCTION
Doctorate programs have been the focus of scholars and practitioners in the field of education for more than a century. The dialogue between the doctorate candidate and the supervisor has been conducted in a closed two-way format. However, the mentorship process in educational leadership programs has taken on new forms in line with the needs of the 21st century and expectations of faculties and schools. There has been a growing interest in developing unique models for doctorate education since 2005. Recent innovative practices
reflect the principles of “community of practice” and “action research” with the notion that educational leaders who are also doctorate students should be encouraged to stay in touch with schools, take helpful action, and return to the university to share their lived experiences. Therefore, creating a Community of Practice culture in a doctorate program and including students in that learning community through a collaborative and collective practice could be an exhilarating experience for both educational leaders and faculty members. The purpose of this paper is to illustrate the ways in which Community of Practice Theory was adapted in a newly designed innovative doctorate program in educational leadership. The paper describes how Community of Practice Theory was applied in three domains: Program co-construction by faculty members while implementing and refining the doctoral program; organization of doctoral students into Leader-Scholar Communities for action research advising and dissertation completion; and identity development for faculty members while team-teaching a newly designed course. Authors describe their experiences and insights in all these domains with regard to program design, student and faculty discourse. Experiences shared in the paper illustrate the ways in which abstract general theory becomes practice in community. This study is expected to further the discussion of how to create a CoP culture in doctorate programs, specifically in program re-construction, implementation of innovative teaching practices, and cultivation of student and faculty participation through collaboration.

2. COMMUNITY OF PRACTICE THEORY

Community of Practice Theory describes conditions that promote learning by people who are actively engaged in a complex domain of practice. To create a community of practice three elements must be specified: domain, community, and practice. According to Wenger, McDermott & Snyder (2002):

“A domain of knowledge defines a set of issues, creates common ground and a sense of common identity. A well-defined domain legitimizes the community by affirming its purpose and value to members and other stakeholders. The domain inspires members to participate, guides their learning, and gives meaning to their actions. Knowing the boundaries and the leading edge of the domain enables members to decide exactly what is worth sharing, how to present their ideas, and which activities to pursue” (Wenger, McDermott & Snyder, 2002, pp. 27-28).

“The community creates the social fabric of learning. A strong community fosters interactions and relationships based on mutual respect and trust. It encourages a willingness to share ideas, expose one’s ignorance, ask difficult questions, and listen carefully.... Community is an important element because learning is a matter
of belonging as well as an intellectual process, involving the heart as well as the head” (Wenger et al. 2002, pp. 28-29).

“The practice is a set of frameworks, ideas, tools, information, styles, language, stories, and documents that community members share. Whereas the domain denotes the topic the community focuses on, the practice is the specific knowledge the community develops, shares and maintains” (Wenger et al. 2002, p. 29).

“When they function well together, these three elements make a community of practice an ideal knowledge structure—a social structure that can assume responsibility for developing and sharing knowledge” (Wenger et al. 2002, p. 29).

Community of Practice theory holds that when a group of professionals shares interest, experience and passion about a common domain, comes together regularly to talk about problems, solutions and developments in their domain, and the members are simultaneously engaged in professional practice in that domain, rich learning is likely to occur. Community of Practice Theory is a specific variety of social learning theory, which posits that deep learning results from social interaction among individuals who are acting on the world together and observing the consequences of their actions.

Because it is a general theory, we were faced the challenge of adapting its general principles and structural properties to the specific demands of co-designing, launching and managing a new doctoral program in innovative leadership in a real-world context. The remainder of this paper describes how we applied the general principles of Community of Practice Theory in three domains of the doctoral program.

3. RESULTS
Domain 1. Program Design and Refinement. During the first years of implementation of the innovative doctoral program for practicing leaders in education, significant changes were required in how faculty members taught and advised doctoral students. The new doctoral program design included: team teaching by professors, doctoral advising of small groups of students rather than single individuals, use of mixed method research design, multiple cycles of action research culminating in the dissertation, and doctoral research conducted on practical issues arising in the students’ professional workplaces. All of these changes challenged the lived experiences of the professors involved, as virtually all had earned their own doctoral degrees in traditional PhD programs.

“Early in program implementation, we realized that a meeting structure that we adopted primarily for communication called the Doctoral Steering Committee (DSC) also became a vehicle for faculty development, learning, and support. The
DSC met every three to four weeks. Membership consisted of those teaching the core courses and all faculty members leading the Leader-Scholar Communities. The original group of faculty was comprised of ten tenured or tenure-track faculty, four men and six women. In subsequent years, the group grew to sixteen faculty members, including three clinical (fixed term) faculty members. All held terminal degrees. During the first five years of the program, approximately 30 different faculty members participated” (Painter & Clark, 2015, p. 192).

“The agenda for DSC meetings was organized under two headings: first, a check-in time when members reported on students’ current work and progress, including identification of any student that seemed to be struggling. The second agenda heading was operational items, e.g., what the requirements of the dissertation proposal would be, how the comprehensive examination would be handled, the format for public display of research. We had looming deadlines that forced action (for example, What will the dissertation proposal look like?). This meant that we planned in real-time. The DSC leaders generally prepared a proposed course of action or draft documents as the basis for discussion and action. During DSC meetings, faculty members reviewed upcoming deadlines and current practices and made adjustments as necessary to achieve program goals. Having all faculty members present alerted us to possible problems, conflicts and uncertainties that could be addressed as planning occurred. Only after faculty had experienced the major innovations (team-teaching, cycles of action research, mixed methods) did we conduct reviews with the expectation of change. Most often, we found that through acting, the faculty became supporters – even vociferous defenders – of the innovations, even where they had previously expressed doubts” (Painter & Clark, 2015, p. 192).

“It is important to note that the DSC as a community of practice was not a governance structure of selected individuals sanctioned by the organization. It was a committee-of-the-whole. Every faculty member who taught and advised students in the program was included in this community of practice. This was so because it is critical that the faculty members in contact with students are learning and this community was, above all, a learning community. It was a place where these faculty members could tell stories to make sense of their work and assist each other to solve problems. Within organizations, individuals engaged in similar tasks develop informal communities to tell stories that make sense of their work and to improve practice with mutually shared knowledge and judgment (Brown & Duguid, 1991; Wenger, 1998)” (Painter & Clark, 2015, p. 192).

A principal lesson learned from this experience is that using Community of Practice Theory to organize program design and development, and particularly the Doctoral Steering Committee, served as a useful guide for professors who were venturing into unfamiliar territory. During the early years of this new program, unanticipated practical problems arose that called on program faculty to improvise solutions in the cooperative/collaborative spirit of the theory guiding the program. Organizing people and deliberative processes in a theoretically coherent way, well before urgent problems present themselves,
increased the probability that problems would be solved and dilemmas managed effectively by consensus.

Domain 2. Signature Pedagogy. Since Community of Practice Theory is a theory of learning for adult professionals, it followed that we should apply it in designing learning and knowledge structures for the doctoral students who were also seasoned professional leaders in Arizona education. Community of Practice theory was applied to organize learning/working groups of students enrolled in the doctoral program in Leadership and Innovation, to support applied learning, dissertation designs and degree completion. Leader-Scholar Communities consisted of working groups of 4-5 doctoral students and two faculty mentors who met regularly during the course-taking and dissertation development and completion phases of the doctoral program, especially during the final two years of the three-year program. Essentially, Leader-Scholar Communities became doctoral program-specific versions of communities of practice, each refining its domain, community, and practice over the course of three years of intense study and field research. The functions of LSCs are described by Olson & Clark (2009):

“What made LSCs productive for educational leaders’ and faculty instructors’ learning and development in the program was the inherent collaboration and practice of their domain through student-driven, inquiry-based research projects, or action research that culminated in their dissertation thesis. Because the LSC model was organized around a group of students with one faculty advisor, all working toward completing their various projects in their specific field of interest, professors has to take on the role of learner as well as mentor, redistributing knowledge and authority throughout the community; the faculty were the experts of the principles of research, writing and literature, and the students were experts of and leaders in the specific contexts in which they conducted the research. The distribution of expertise allowed professors and graduate students multiple opportunities to collaborate together to affect change and learn from each other, as well as provided them with a safe space to take risks in their use and application of their new knowledge” (Olson & Clark, 2009, p. 217).

We learned that the LSC became an essential part of the program that enabled students’ success: it was a safe environment in which to take risks in their learning and to collaborate with peers; it was a place to solve problems with peers and mentors who provided expert advice on the conduct of applied research. Most importantly, the LSC provided students with a sense of care and belonging in graduate school. Our major lesson learned from applying Community of Practice Theory to the design of Leader-Scholar Communities is that this theory can be instrumental in building community. LSCs provided the doctoral students with a protected social space in which to work and develop their new knowledge and skills, facilitating their success in the
curriculum and of their own research. As a consequence, all doctoral candidates graduated on time and attributed much of their success to their membership in LSCs. We learn, therefore, that Community of Practice Theory, when implemented on a small scale with doctoral students working together in community, can build a sense of connectedness and participation that promotes social and academic success.

Domain 3. Faculty Development. The framework of Community of Practice theory was applied to operate a working group of four professors tasked with team teaching a pair of doctoral courses on applied research. The professors came to the setting with varied backgrounds and amounts of experience in doctoral education, little of which applied directly to the new doctoral program in which they were team teaching. Community of Practice framework enabled the teaching team to sustain and benefit from a pre-course planning and design process, weekly meetings to assess student progress and changing needs, and in-class modeling of professional collaboration and adaptive course design. Reflective narratives written by each professor at the end of their team teaching experience documented the variety of ways in which they attribute to their community of practice their identity development as stewards of the practice of teaching. The professors’ approach to innovative teaching was based on a combination of cultivating reflective practice, team teaching and generous forms of mentoring. Further, the narratives show that interacting in a community of practice produced long-term changes in the professors’ approaches to teaching in higher education and facilitated their continuing collaboration for eight years beyond their initial team teaching experience. There are many paths to the stewardship of teaching, each constrained by local circumstances, habit, politics and personalities. Faculty members must practice stewardship themselves and serve as models for students in order to influence school leaders to become more reflective about student success. We conclude with the claim that Community of Practice Theory can be used to enable professors to develop and enhance their professional identities and confidently learn how to engage in challenging and transformative new approaches to teaching. We believe that in order to create and cultivate stewards of practice in education, faculty members in doctoral programs must first become stewards themselves. When faculty members and doctoral students embrace a shared theoretical framework, sustained learning, development, and connection are maximized for both groups.

4. REFLECTION AND A RECOMMENDATION

Our experience with applying one theory of learning, Community of Practice Theory, in the design, operation and knowledge structures of one doctoral
program in education leadership served us professors and served our students well. We benefitted from having a shared language, a shared set of principles for guiding learning and decision-making, and from enhanced coherence among the several facets of the doctoral program. Program coherence made it easier to communicate about the doctoral program within the university community and to recruit subsequent cohorts of highly qualified candidates. Most significantly, the program’s theoretical coherence and consistency across different courses and in the dissertation process enhanced student success in completing the degree on time, which is a persistent problem in other less theoretically explicit doctoral programs in the USA.

While Community of Practice Theory served us well at an American university famous for its spirit of innovation, it is possible that applying other theories in higher education may also generate benefits similar to those we have documented. Every university, school and department culture has its own special qualities, strengths and history. We believe that lessons we learned in this program could be applied in locally appropriate ways to strengthen programs of leadership development both nationally and internationally. Our primary recommendation is that programs and faculties of education that employ an explicit shared theoretical framework to guide, organize and manage programs in higher education are likely to experience superior results for themselves and for their students. As the saying goes, there is nothing so practical as a good theory.

5. CONCLUSIONS
Our general claims include: 1. Good theory promotes program coherence. There is significant practical value in explicitly identifying and applying a robust but simple theoretical framework in designing and implementing an advanced program of graduate study. 2. Good theory guides the perplexed. During the early years of a new program, unanticipated practical problems arise that call on program faculty to improvise solutions in the spirit of the theory guiding the program. 3. Good theory builds community. When faculty members and doctoral students embrace a shared theoretical framework, sustained learning, development, and connection are maximized for both groups.
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Professional insertion as a reflexive process

Helena Amaral da Fontoura¹, and Filomena de Arruda Monteiro²

¹Universidade do Estado do Rio de Janeiro
helenafontoura@gmail.com
²Universidade Federal de Mato Grosso
filarruda@hotmail.com

ABSTRACT
This paper disserts about narratives by teachers in their initial professional insertion, in a program called Pedagogical Residence, developed at a public university in Rio de Janeiro, Brazil. The main purpose is to present and analyze narratives that bring difficult situations lived by first year elementary school teachers that caused them to challenge their professional choice. The Pedagogical Residence program consists of a space to signify experiences and discuss situations lived by the participants that can count on peers to support and reflect upon challenges of being a teacher in our days. The theoretical framework for narratives as a means of data collection and analysis is mainly Clandinin and Connely. The main contributions so far deal with the needs for support felt by initial teachers that university-school partnerships can be responsible as well as the importance of providing situations for reflection and self-actualization of teachers in constant professional development.

KEYWORDS: teachers’ professional development, professional insertion, narratives, thematization

1. INTRODUCTION
This paper presents narratives by teachers in their initial professional insertion, in a program called Pedagogical Residence, developed at a public university in Rio de Janeiro, Brazil, part of a research project developed in order to study teachers’ professional development (Day, 2001, 2005). The research question was what teachers think about their process of entering the career? The main purpose of this paper is to present and analyze narratives that bring difficult situations lived by first year elementary school teachers that caused them to challenge their professional choice. The Pedagogical Residence program consists of a space to signify experiences discussing situations lived by the participants that can count on peers to support and reflect upon challenges of being a teacher. Nóvoa (2002) brings to light the need to involve teachers in their process of becoming a professional, so the program has the aim to provide situation of learning to teach, reflect upon lived experiences and talk and write about the paths followed during first years of teaching.
2. THEORETICAL FRAMEWORK

One of our pillars is teachers’ professional development (Day, 2001), related to moments of significance attributed by the ones in the process within the context they happen. Teachers explain to themselves how they see the challenges, think about what they do daily, building up their practices and beliefs about teaching, understanding that every experience has a potential to be explored. Day (2005) also states a holistic view of teachers’ professional development, thinking about challenges and constraints that can affect their capacities to develop competences, so that education can be a better job for children and youngsters can be more satisfying. For the author, the sense of teachers’ professional development depends on their personal and professional lives, the political contexts within schools were they perform their jobs as well as reflecting upon their teaching activities.

The theoretical framework for narratives as a means of data collection and analysis is mainly Clandinin and Connely (2015). The main contributions so far deal with the needs for support felt by initial teachers that with university-schools partnerships can provide as well as situations for reflection and self-actualization of teachers in constant professional development. For Connelly and Clandinin (1990) there is a difference between narratives and stories; the phenomenon constitutes the story but the method that investigates and describes it becomes concrete by the narratives. For them, narratives are the study of different ways humans experience and tell about their ways of living and working.

We all have stories to tell about our lives, but as researchers using narrative as a method, construct and reconstruct social and personal stories as we interpret them, and that must be clear to readers. In educational settings, teachers construct images, rituals, habits and routines based upon their experiences, and it is up to researchers shed lights on what one sees and tells. By assuming a theoretical and methodological narrative perspective one can understand the process of research and not only the product. Doing so, all the participants engaged in dialogues within schools contexts, negotiating confidence contracts, interactions and collaborating, reflecting upon teaching as a profession, socially referred and capable of transformation for a more equal society (Zeichner, 2009).

As stated by Clandinin & Connely (2011), we are part of the show we intend to study, the idea of a parade that we all take part puts down a separation between the one who researches and the ones researched, as we are all travelling the same path. As individuals and social beings, we live narrated lives, and researching through narratives becomes an excellent opportunity of recovering ‘told lives’, how one experiences the world, reflects about, gives sense, constructs identity, builds conceptions, and takes stands about challenges faced
in daily lives. As far as teaching training, all these factors are part of the structure of the process, and reinforce the need to a good look at our lives and experiences, a deep concern about others, with no separation between the ones involved.

Daily life can be perceived in a particular way, as we give sense to situations lived, to our beliefs, values and social roles present in our social groups of belonging. Narratives as a research tool are a renewed paradigm that brings about configurations not seen before, and an approach that combines theory and practice undivided constructed as a unity. The process of narrative inquiry has three dimensions, according to Clandinin and Connely (1995): temporality, sociability and context, being a tridimensional process. The temporality can be seen as the narrative historically located, present, past and future within what research participants tell. The sociability stands for a sharing process, among participants and spreading for readers. Moreover, the context where it happens is a very important part of the account for what happens and is narrated. Both subjectivity and objectivity of all involved are present throughout the data collection and analysis.

3. METHODOLOGY.

The data collected was analyzed by thematization, a method developed by Fontoura (2011) that consists in following some steps rigorously in order to bring to attention themes perceived by the researcher as relevant for the discussion that the investigation deals with. The process follows some steps: first step is a transcription of data collected, very important to make sure everything that was said or written can be read, as many times as necessary, so the following step is an attentive reading, dialoguing with data, listening to what the field had to say. This reading allows for an interaction that can make clear to the researcher the points that seem relevant in his/her perception, reason why it is highly recommended that the one in charge of the research transcribes data and reads over transcriptions.

The relevant aspects can be considered the analysis corpus, what is going to become working material, to provide reflections, dialogues with theory and steps forward in knowledge in the area researched. Doing so, one can identify relevant themes coherent with investigation purposes, and signalize the context unities, longer excerpts, and significant unities (shorter excerpts). Following, some tables can be drawn to visualize the chosen themes, containing context unities and significant unities as well and comments when appropriate.

Finally, interpretation according to theoretical framework, and possible new references that emerged from the filed data analyzed. The process has to be developed carefully in a way that readers can follow and understand the research movement. This technique can be useful for qualitative data analysis.
as can be of help for researchers in similar subjects, reinforcing that each way of perceiving phenomena is particular of each researcher who selects themes to shed light.

4. RESULTS.

Some findings may seem common sense but we defend the position that research has to point out issues that are not solved for educators and entering and remaining in the career seems to be still a point in need of lights. The research here presented is part of a project that has as main goal follow student teachers recently graduated in their first three years of teaching in schools from grade one to grade nine, and the part brought here deals with narratives from 29 beginning teachers regarding their professional insertion, especially in their first year. The group met Saturdays for one year, read texts and wrote essays, talked about anxieties and exchanged experiences. The investigation followed some paths in order to show what teachers in the research had to say about their induction process, the experiences they remembered and valued, in all senses, as important marks on their professional development. Due to limitations in space for the present work, we will go to the themes considered more relevant at this point.

The first theme considered important is the way teachers perceived what they experienced as preparation for teaching. Most participant teachers felt that university did little to prepare them for the teaching profession. Some remember the practicum in the last year of graduation as a period were close contact with school setting was possible, but still claim that there is a difference between being student teacher and having the responsibility of a real classroom. “When I was at the University I had a feeling that I could handle students and be a teacher but when it became for real I felt unprepared”. “You wouldn’t believe the many times I felt like giving up as the sense of hopelessness was so overwhelming… If it wasn’t for the other second grade teacher that helped me out I would have quit altogether.” As we learned from literature, one good way of preparing in service teachers is by mentoring (Monteiro, 2014), having a more experienced teacher help out with beginning teachers.

Within this theme, we heard some remarks about the programs offered by the municipal Board of Education, stating that they were “a loss of my time, some instructors knew less than I did”; “I sat there and even with a big effort I could not relate to what was being taught… seemed that the instructor never set foot in a classroom for real.”

As for Clandinin (2010) experience is life, we will bring some of the narrated episodes in a free translation by the authors, our understanding of what was said. One of the teachers, a beginner, in her second year followed the students from grade 2 to grade 3, and she says “it was a good experience as we were all learners”. Another teacher talks about the different stages of development in her
grade 2 class, “some could read, some couldn’t and I didn’t know how to deal with this situation”. A more experienced teacher told her to try to divide the class so the ones who knew could help the ones who did not know. According to her narrative, “I never thought of a solution like this, it seems obvious now but I needed someone to tell me that.” As we learn for doing research in the field of Education, nothing is obvious to start with.

The second theme was challenges for novice teachers. One of our participants tells about the challenges she faced in her first year, “some students were in different stages of development, but I mean VERY different, not the normal differences and I didn’t know what to do”; “I had 28 students, no support at all and the structure in the school was very poor, I almost gave up”. When thinking about initiatives for teachers’ preparation the ones in charge of university programs or in service programs by governmental agencies have to bear in mind the need to contemplate what teachers really need and want, feel and fear, otherwise the risk of a project that has no results for the designed goals is impressive.

Other participant narrates the many times she had to face “things I didn’t know and had no one to ask”, telling about her shyness to confess what she called “lack of preparation for teaching”; according to her, colleagues would think “bad things about me and I didn’t want that to happened”. However, as she went along in her statement, she came to terms with her lack of knowledge when a more experienced teacher came to her and offered help. “You wouldn’t believe how relieved I felt” […] “She did not judge me and I couldn’t believe how lucky I was for having help from a good teacher in the school, everybody thought she was a good teacher…”

In addition, the third theme was resources available and/or shared. Three participants referred to groups created in order to share information, ideas, and concerns in the schools they were starting their teaching practices. Seems that WhatsApp as a potent tool for that sharing is seen as a winner. Some sayings about it: “the group created in the school by Marla, the supervisor, with Regina, the fourth grade teacher, was such a help for all of us newcomers, every day we had messages and tips on how to handle the daily challenges”; “you can’t imagine how I felt good about the ‘supporting’ group, I could type my doubts and have several ideas and a lot of good vibes”. Many complaints registered had to do with educational tools and if and how to use them. This matter has to be included as technology is an important part of modern life.

5. IMPLICATIONS/DISCUSSION.

Participants’ narratives reveal contradictions present in teaching, showing different ways of dealing with contexts of practice, as schools and people are different and demand different responses. Life as a singular-plural as stated by Ferrarotti (2014). As teachers can reflect upon difficulties in their workplace, share with others, have their fears considered by a significant other, their
professional induction can occur with less pain and the chances that he/she remains in the career become greater.

Narratives show paths followed by teachers when starting professional life, and when a research project dealing with insertion provides food for thought, we tend to agree with Nóvoa (2002). The author reinforces that when research calls teachers to reflect upon their experiences, they are able to reconstruct professional knowledge in a practical and deliberated process, which enables self-analysis as well as analysis of defiant situations.

One of the advantages of working with narratives is to provide a freedom of expression to the ones involved, in a way they can express fears, doubts, thoughts, both individually and in groups, as well as their views about teaching, the way they perceive the context where they are immersed. On the other hand, the constitution of teaching identity is rooted basically on lived experiences that when reflected upon give better chances to the ones initiating the career to feel secure and helped, and probably do a more satisfying job for him/her and for the students.

6. CONCLUSIONS

As we can see from some of the data brought here, teachers are aware of the need to have needs heard, but the ones in charge of public policies in general seem not aware of the need to hear teachers. In investigation here in dialogue, teacher-training shows interconnected to research in the classroom and not just in courses, lectures, workshops, which inform about certain topics but lack, in teachers’ views, discussions about real facts and situations faced when starting practice.

We have clarity, from our experience, that teachers learn by sharing, and the work of a reflective teacher produces his/hers professionality. Cannot, therefore, be understood as an action in time and space isolated from the context of role of the teacher, but a daily training that allows you to listen, ask and confront life experiences. To this end, training spaces in which we believe work in pursuit of improved quality of education and good performance of the professionals involved in the process.

On the reflections presented, we are composing and recomposing teaching as experience endowed with senses and meanings, a locus of production of subjectivities and inter subjectivities, in a movement of signification, anchored by problem based knowledge, in the interweaving of different cultures within a school context, privileged place of learning and teaching professional development.
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ABSTRACT
Various online communicative methods, such as blogs, emails, Facebook, twitter, text chat, are used for the purpose of immediate communication by people separated by time and space. To create a comparable authentic communicative environment for EFL students, the Online Cultural Exchange Program (OCEP) is designed to support communication in written form between students in different countries. The participants were from Taiwan, Japan and Indonesia. They were required to write up to 200 words, introducing themselves, describing their local culture or events, and finally summarizing and expressing their viewpoints after watching TED talks. This study attempts to investigate what the participants from Taiwan thought of the program and communicating and exchanging ideas with foreign students online. The results show that all the participants held positive and favorable attitudes toward OCEP. They said that online communication gave them an opportunity to think at greater length about their own culture or local issues. During the writing process, they had to look up new words or things they were not familiar with on the Internet or read what the other participants had written, which enhanced indirectly their reading ability and increased their vocabulary. They learned to synthesize the information they had obtained, reorganize it in a logical order, and then write it down in their own words. In addition, reading the other participants’ writing made them aware of cultural differences and similarities. Based on the survey results, some pedagogical implications regarding how to encourage more interaction online are proposed.

KEYWORDS: cultural awareness, linguistic context, online cultural exchange program, online communication, situation context

1. INTRODUCTION
Globalization and internationalization in the context of economic and academic activity is a trend that is part of the reality of the 21st century (Altbach & Knight, 2007). To cope with the global academic environment, communicating with foreigners online has become increasingly frequent. Online interaction, such as through Facebook, Twitter, forums, online dating and networking, serves two major functions: language acquisition and intercultural communication. Notable for its convenient accessibility, online learning has been developed and employed to improve learning and teaching...
for some time. Learners can access it anytime, anywhere, work at their own pace (Harasim, 1990), remain concealed (Simonson, Smaldino, Albright, & Zvacek, 2000), and most importantly, store and retrieve information more effectively.

Nowadays, students enjoy surfing the internet. They are no longer forced to learn only from their teachers in the classroom; they can learn anywhere and anytime as long as they can access the Internet. Internet resources expand the pool of input to language learners and enlarge the language learning context (Pennington, 1996). They increase the diversity and variety of types of input available, offering new sources of information and partners for interaction such as by e-mail (Warschauer, 1995), Internet browsing and chat activities (Lam, 2000), or on-line writing conferences (Sullivan & Pratt, 1996). The Internet has become an invaluable aid in many areas of our lives and learning language through technology has become a fact of life.

To this end, the Online Cultural Exchange Program (OCEP) was developed and employed to address students’ need to interact internationally with peers of different cultural backgrounds. The main objective of this program is to enable students to understand intercultural or cross-cultural differences and similarities, raise awareness of cultural diversity, communicate with people who do not have the same first language, and improve their writing skills.

This study was undertaken to investigate what participants thought of the online cultural exchange forum in terms of language acquisition and intercultural competence. Their perceptions or suggestions can serve as signposts for future improvement.

2. THEORETICAL FRAMEWORK

Communication involves the ability to make yourself understood in socially appropriate ways. At any given time there are certain trends in foreign language teaching. One of the latest trends is task-based language teaching (TBLT), which emphasizes the use of authentic language through meaningful tasks. According to Larsen-Freeman (2000), TBLT means providing a natural context for relatively realistic language use, and focusing the learner’s attention on a real-world task, problem, activity, or topic, and not on a particular language point (Stern, 1992). It gives learners confidence in trying out whatever language they know and give learners experience of interaction and the chance to benefit from noticing how others express similar meanings, and eventually develop learner's confidence that they can achieve communication goals (Willis, 1996). The OCEP was designed within the framework of TBLT.

A task is an activity or a workplan where the target language is used for realistic communication, focusing on meaning rather than forms (Ellis, 2003; Prabhu, 1987). It provides the input and output processing necessary for language
acquisition. Task-based instruction includes pre-task, during task and post-task stages (Ellis, 2003). During the pre-task phase, teachers introduce the topic and the task, help students understand instructions on what they have to do at the task stage and recall some language that may be useful for the task. During the task cycle, the students complete a task in pairs or groups using the language resources that they have as the teacher monitors and offers encouragement. Then, students need to prepare a short oral or written report to tell the class what happened during their task. The post-task phase focuses on analyzing, examining, and discussing the language students produced. Finally, the teacher selects language areas to practice based on the needs of the students and what emerged from the task and report phases. It is a strong communicative approach where students spend a lot of time communicating. It can be seen as a refinement of Communicative Language Teaching and a reaction to the use of PPP lesson.

Studies showed that good EFL learners pay close attention to the formal properties of the target language (Ellis, 2003), attend to form and monitor one’s own and others’ speech, as well as pay attention to how the target language is used (Bruton, 2005). In a task-based lesson the students are free of language control and learn by interacting. The teacher doesn't pre-determine what language will be studied. The language explored is determined by what happens as the students complete the task. Willis (1996) proposes six task types: listing, ordering and sorting, comparing, problem solving, sharing personal experiences, and creative tasks. Teachers have to select, adapt, and integrate the chosen tasks into an instructional sequence in keeping with learner’s needs, interests, and language skill level. In this study, the during task activities employed include opinion exchange, personal experience sharing, narrative, and comprehension-based reasoning.

Much research has shown that target language acquisition has a close relationship with classroom participation and interaction (Pica, 1994). Providing practice in the classroom promotes learning outcomes (Cheng, 2004). In addition, guidance in the different types of writing, such as responses to a reading, summarizing, and message posting, needs to be provided and these forms practiced (Sokolik, 2003). Therefore, participants were encouraged to complete their ‘initial post’ during class hours, during which process they were focusing on the exchange of meaningful messages for communicative purposes. After class, they could login to the program, revise their writing or reply to other’s messages freely.

3. METHOD
3.1 Participants
Participants of this program were from three different countries, Japan, Indonesia and Taiwan. They were not native speakers of English; so they had
to use English as a lingua franca for interaction, that is, a common means of communication. They were strongly recommended to send one initial post to the forum and several replies to others’ postings. They were expected to collaborate with other students in exchanging information and in discussing the issues raised by the designated topics. To increase intercultural communication and interaction, every participant was assigned a buddy from a different country.

Although participants from Taiwan had been studying English for more than twelve years at the time this study was conducted, this was their first real-time experience of interacting with foreigners online. Though there were three groups of participants, the survey was only administered to the Taiwanese students, 56 senior students majoring in Business Management at National United University. On average, their English proficiency was at CEF B1 level, with better reading than writing.

3.2 Procedure
This program, lasting for eight weeks, is divided into five stages, each of which has a definite theme and set of targeted skills. Each stage is opened for initial posting and discussion in sequence according to the schedule. After completing the five stages, the forum is still open for three more weeks, allowing students to wrap up their contributions.

Participants are recommended to develop a specific topic relevant to each theme and write messages or thoughts on the forums at http://ocep.vss.miyazaki-u.ac.jp/esp/. A survey concerning their attitudes to and perceptions of the online cultural exchange was conducted at the end of the program.

4. RESULTS AND DISCUSSION
Though participants of the online cultural exchange program include Japanese, Indonesian, and Taiwanese, the survey results detailed in this section were gathered from Taiwanese students.

Around 80% of the participants said they felt excited to exchange ideas with foreign students and were interested in the topics chosen for discussion in each stage. Since they had never experienced communicating with foreigners in written form, they thought it was a good opportunity to practice writing and to communicate in real-time with foreigners. More than 78% felt participating in the program helped improve their English writing ability. They thought at greater length of the issues that they wanted to discuss or share so as to express them more clearly and appropriately. As a result, during the whole program, they took the lead in posting messages, leading discussions, interacting with their buddy and answering others’ questions. Knowing that both Japanese and Indonesian students would read their postings, they spent
more time looking for information and composing their messages than usual. They tried their best to write clearly and appropriately, afraid that foreign students might misunderstand what they had posted on topics such as Chinese culture and customs, their viewpoints, and their ideas. More than 75% said because they wanted to better their writing and express themselves more clearly, they often accessed the forum after class multiple times to revise their initial postings, read others’ postings, or respond to their peers’ questions. The average access rate of each student, reaching 5.6 times per student, indirectly supports the above statements.

More than 70% said that they preferred to read the postings written by both Japanese and Indonesian students. By reading the messages posted by foreign students, they learned more about foreign culture, customs, food, scenic spots, trends, etc. Most important of all, they learned to look at things from different perspectives. They realized that there was no right-or-wrong, good-or-bad in terms of viewpoints, culture, food, or customs; there were only differences. Three of the students said it was easier to understand the messages written by their classmates than those of foreign students. It was possible that their classmates’ language ability was better than that of the foreign students. It was also possible that due to cultural influences the way foreign students expressed themselves was different from that of their classmates. One student reflected that she felt the foreign students were hard working and had better and more profound views on global issues than her classmates. To sum up, they benefited a lot from this activity -- learning to respect, appreciate and accept others’ differences, they said.

Ten of them said being able to interact with foreigners and be understood made them feel it was a great success, giving them a sense of achievement that they had never had before. They thought it was a rewarding and enriching experience. In the future, they would like to participate in any similar online forum or conferencing. They were willing to recommend this program to those who have never experienced communicating with foreigners.

Speaking of their favorite topic for discussion, none of them liked to discuss local plants, probably because they were business majors and were not familiar with any plants. Thirty-five out of 56 said that they preferred to discuss local culture and customs, especially their favorite local food. Eighteen participants preferred self-introductions, because as a result it was easier for them to make friends and share their common interests. Fourteen liked to watch the TED Talks and then discuss issues related to the topic. They said the talks were informative and the topics worth pondering. They needed to reflect on the key points mentioned and figure out how to deal with the raised problems. They learned to use different approaches or perspectives to look at the problems.
They felt their interest in and attention to social issues were aroused, and more importantly, their critical thinking and reflective ability were strengthened. They all agreed that such kind of on-line activity was stressful because everyone could read each other’s writing and make comparisons. However, pressure is not always a bad thing. Because of peer pressure, they paid more attention to their writing. They spent more time generating, composing, reviewing and revising their writing. To be sure, such kind of positive learning attitudes can be expected to enhance learning outcomes.

Two participants said joining the online forum, they could communicate with foreigners without going abroad. Learning that many Japanese and Indonesians are interested in Taiwan and Taiwanese culture, they felt very proud to be living in a wonderful land. Idea sharing and exchanges broadened their global knowledge and viewpoints. They found that using English for communication was not the same as preparing for exams. Fluency and appropriate expressions played a more important role than accuracy. It was refreshing and rewarding to exchange ideas and viewpoints with foreigners online, they explained further.

5. SUGGESTIONS AND IMPLICATIONS
Though the majority of participants had positive attitudes towards the online cultural exchange, there were still some who responded negatively. Some students said that the program was not user-friendly. They hoped that they could be notified in real-time if someone was on-line, typing a response to their messages. If the buddy pair policy could be implemented in such a way that messages necessarily resulted in responses, the interaction between paired members might proceed more smoothly, leading to better results. Using more general-interest topics, mini-videos or movie clips for discussion would result in more interaction. These suggestions will be taken into consideration for future improvement.

6. CONCLUSION
In conclusion, this online cultural exchange program offered participants opportunities to learn about cultural diversity in a professional and ethical manner, by providing knowledge of, sensitivity to and respect for the values of others, and equally importantly, knowledge of and respect for their own values. It has great potential to foster students' interpersonal, communicative and presentation skills because of these enhanced learning opportunities for students to interact with peers. At the same time, it helps develop and build social relationships and mutual trust among online community members, strengthens peer relationships and connectedness, and reinforces student learning outcomes in a class-wide learning community.

The data for this study were gathered from a group of Taiwanese students. The conclusions cannot be generalized. Future study will include Japanese and
Indonesian participants to see if they have the same views as those of the Taiwanese participants.

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Coaching in education: what are we talking about?

M. Carmen González-Valderas

Universidad de Cantabria
maria-carmen.gonzalezv@alumnos.unican.es

ABSTRACT
Whereas most of the people are familiar with the term “coaching”, it is not clear how it can work in educational settings and if it can be of any help. We believe the array of names given to coaching in education, such as instructional, peer or literacy… plus the abundance of definitions do not help elucidate the real essence of coaching, how it is being used, what for or how it is helping teachers. In this paper, we aim to do a revision of the literature on the subject to shed light on how it is being used in schools internationally, especial focus given to Anglo-Saxon countries and to instructional and literacy coaching to see how it works and if it can be of any help in Spanish context.

KEYWORDS: Coaching, Instructional Coaching, Literacy Coaching, Peer Coaching, Secondary Education, Professional Teacher Development.

1. INTRODUCTION
Changes in our way of life, the evolution of our social an economic paradigm, the way technology has entered our lives, etc. present new challenges to education and, therefore, to teachers. Not only because of the challenges teachers have to face to teach XXI century students, but also the challenges placed on them as they are considered to be one of the main keys to introduce sustained changes to help all children succeed (Neufeld & Roper, 2003; Strunk, Marsh, & Bruno, 2017; Wenglinsky, 2000).

Although children’s education cannot fall solely on teachers shoulders as there is evidence of multiple sources of influence (NICHD-ECCRN, 2004 as cited in Connor, 2017), there is also evidence that an instruction of quality is directly connected with better student learning outcomes (Gallucci, DeVoogt Van Lare, Yoon, & Boatright, 2010; Lynch, Smith, Provost, & Madden, 2016; Wenglinsky, 2000) and has therefore placed teachers’ development in the centre of educational reforms.

In this context of change, there is a general understanding that the professional development of teachers need new approaches (Neufeld & Roper, 2003) which would include an emphasis on professional collaboration and job-embedded professional development (Borman, Feger, & Kawami, 2006). Also, “learning theory suggests that individuals learn best when provided with opportunities to
discuss and reflect with others, to practice application of new ideas, to receive feedback from an expert, and to observe modelling” (Marsh, Sloan McCombs, & Martorell, 2009, p. 876).

2. COACHING IN EDUCATION
Among all new approaches, coaching is seen as a promising strategy for new professional development (e.g. Boatright, Gallucci, Swanson, Lare, & Yoon, 2008; Houston, 2015; Neufeld & Roper, 2003) as not only does it meet the above criteria for professional development but also there is evidence that coaching has an impact on classroom practice (e.g. Anderson, Feldman, & Minstrell, 2014; Kowal & Steiner, 2007; Neufeld & Roper, 2003; Teemant, 2014) and that it helps teachers to accomplish their goals in terms of students’ outcomes (Marsh et al., 2009; Toll, 2005; Wenglinsky, 2000).
What has also been found and which we consider one of the reasons coaching is increasingly being introduced in schools as an efficient strategy for teachers development is that, besides the professional growth, in terms of students outcomes, coaching also helps teachers increase personal skills such as self-efficacy, self-esteem, interpersonal relationships and it positively influences their wellbeing (Grant, 2003; Green, Oades, & Grant, 2006; Kohler, McCullough-Crilley, Shearer, & Good, 1997; Ross, 1992; Spence & Grant, 2007 as cited in Patti, Holzer, Stern, & Brackett, 2012). We are not going to deepen in this important aspect of coaching for this communication but there will be further exploration.
There is not just a definition of coaching as there are as many as models appearing in education, each one focusing on a different aspect and that makes difficult to understand this new construct. Cornett & Knight (2009) did a literature review on the subject and pinpointed for discussion what he found the most commonly models used in education: peer coaching, cognitive coaching, literacy coaching and instructional coaching. Due to the limits of this communication, we will be focusing on literacy coaching and instructional coaching which are mainly introduced in schools to provide on-site professional development assisting teachers in making changes in their practice (Coburn & Woulfin, 2012).

3. WHAT IS COACHING USED FOR?
According to Toll (2009), coaching has evolved a lot since it first appeared in 1982. Although, instructional coaching or literacy coaching are mostly used in elementary education to generate improvement in reading instruction (Strunk et al., 2017), it is also used for science teacher professional development (Anderson et al., 2014; Bryce, Wilmes, & Bellino, 2016; Gill, Kostiw, & Stone, 2010; Houston, 2015) or for the instruction of maths (Averill, Drake,
Anderson, & Anthony, 2016; Toll, 2005). And in secondary education as well, when adolescents lack the basic literacy skills necessary for them to learn other subjects (Brown et al., 2006, 2007). But with the abundance of literature describing the benefits of coaching, it is increasingly seen as an effective methodology for developing leadership, enhancing well-being, and facilitating goal attainment within the school (Grant, Green, & Rynsaardt, 2010) and even for the development of the so much sought after collaborative school environment (Darling-Hammond, 1990). There are more possibilities and we have found it is also used in secondary education for the development of new teachers (Britton & Anderson, 2010; Patti et al., 2012; Wygal, Patrizio, Mallory, & Lineburg, 2016).

While doing a literature research on coaching in education, we can observe that most of the studies for instructional and literacy coaching come from the United States; hardly surprising as many educational policies in the USA use instructional coaching to achieve their goals (Coburn & Woulfin, 2012). Federal policies such as the Reading First, Striving Readers and the No Child Left Behind Act have encouraged the expansion of coaching across the country (Houston, 2015; Marsh et al., 2009) and many schools, districts, states, and school reform models currently employ it as a primary part of their improvement programmes (Foltos, 2007; Galm & Perry, 2004; Russo, 2004 as cited in Marsh et al., 2009). But also in other countries coaching is used as a mean to achieve policy goals regarding literacy or numeracy (Day, 2015; Lynch & Alsop, 2007) or as an strategy for the development of teachers. Some programmes utilize coaches to support the implementation of particular instructional models or curricula (Marsh et al., 2009), others use coaching as a strategy for school improvement (Gallucci et al., 2010) and some others are implemented to improve general instructional practice (Marsh et al., 2009). The main purpose of these programmes usually being linked to students learning or student academic development and even some policies want to measure their effect in those terms (Gallucci et al., 2010; Lynch & Alsop, 2007).

4. HOW IS COACHING BEING USED?

Whether it is instructional coaching that targets the craft of teaching (Patti et al., 2012) or literacy coaching focused on instructional practices of literacy and maths (Toll, 2005)... there are two main ways of introducing it in school settings, in relation to teacher development: hiring a professional coach or preparing teachers to become themselves the coaches of their peers. Although peer coaching shows good possibilities in the Spanish context and we will be mentioning some of its benefits, for this communication we have focused our attention on the use of a professional coach.
In this latter case, the coach, usually a master teacher who offers onsite and ongoing instructional support for teachers, works directly with the teacher (Marsh et al., 2009). In nearly all models, coaching is school based, collaborative, and conducted one on one or in small groups and “coaches generally serve in a nonevaluative support role for teachers and do not directly instruct or tutor students unless used as a means to model instruction for teachers” (Marsh et al., 2009, p. 876). In some cases, they support teachers in making changes in their practice by helping them learn new instructional approaches and integrate them into their classrooms, playing thus an educative role (Coburn & Woulfin, 2012). When using coaching to introduce new policies, “coaches typically have no explicit authority over teachers” (Ippolito, 2010; Little, 1990 as cited in Coburn & Woulfin, 2012, p. 922) and are often represented to teachers as peers, but they are sometimes perceived by teachers as working on behalf of the principals as they sometimes pressure and persuade teachers to make changes in their instruction (Coburn & Woulfin, 2012); a very delicate matter being the relationship between the coach and the teacher of central importance for the coaching success (Anderson et al. 2014; Marsh et al., 2009).

Instructional coaches are expected to (a) enrol teachers to be coached; (b) identify appropriate interventions for teacher learning; (c) model teaching; (d) gather data in classrooms; and (e) engage teachers in dialogue about classroom and other data. In addition, a coach requires skills in communication, relationship building, change management, and leadership for teacher professional development (Knight, 2006 as cited in Gallucci et al., 2010) and also has to help teachers close the gap between the professional development and the classroom implementation, between knowing and doing (Boatright et al., 2008; Boehle, 2013; Coburn & Woulfin, 2012; Day, 2015; Knight, n.d.). For the professional coach, “there is a delicate balance between peer coaching or mentoring responsibilities and whole-school improvement or system-wide professional development” (Knight, 2004 as cited in Gallucci et al., 2010, p. 922).

5. HOW DOES COACHING HELP TEACHERS?

We would like to outline benefits found:

<table>
<thead>
<tr>
<th>Coaching Models</th>
<th>How coaching helps teachers</th>
</tr>
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<tbody>
<tr>
<td>Coaching in Education</td>
<td>• Helps teachers practice new skills more frequently and apply them more appropriately in their classrooms than other teachers (e.g. Boehle, 2013; Coburn &amp; Woulfin, 2012; Day, 2015; Joyce &amp; Showers, 1996).</td>
</tr>
<tr>
<td></td>
<td>• Improves teachers’ ability to plan and organize, provide instruction for students with disabilities, use classroom behaviour management</td>
</tr>
</tbody>
</table>
strategies, and address instructional objectives (Kohler, 1999 as cited in Marsh et al., 2009).

- Improves school culture and teacher collegiality (Guinney, 2001; Neufeld & Roper, 2003; Richards, 2003 as cited in Marsh et al., 2009).
- Improves collaboration related to coaching programs (Guinney, 2001; Neufeld & Roper, 2003; Richards, 2003 as cited in Marsh et al., 2009).
- Empowers teachers to draw upon their own resources in developing solutions to problems (Devine, Meyers, & Houssemand, 2013).
- Cultivates self-awareness (Wong & Nicotera, 2006 as cited in Marsh et al., 2009; Patti et al., 2012).
- Promotes emotion management, social awareness and relationship management an enhances leadership potential and performance (Patti et al., 2012).

| Instructional/ Literacy Coaching | • Promotes greater collaboration and reflection among teachers (Anderson et al., 2014; Connor, 2017; Toll, 2009).
|                                | • Helps teacher transfer their learning from professional trainings to classroom practice (Hartnett-Edwards, 2011; L. Hubbard, H. Mehan, & M.K. Stein, 2006; Joyce & Showers, 1982; Kerlowl & Bartholomew, 2010 as cited in Anderson et al., 2014; Brown et al., 2006).
|                                | • Promotes deeper professional reflection (Coggins, 2005; Coggins, Stoddard, & Cutler, 2003; Garet et al., 1999; Poglinco et al., 2003 as cited in Anderson et al., 2014; Boehle, 2013).
|                                | • Provides productive learning environment for educators (Showers & Joyce, 1996 as cited in Boatright et al., 2008).
|                                | • Regards teachers as adult learners (Toll, 2009).

| Peer Coaching                  | • Enhances personal and professional development (Parker, Hall, & Kram, 2008).
|                                | • Enables teachers’ use of new practices in a much more effective way than without Peer Coaching (Showers, 1982 as cited in Knight, 2009).
|                                | • Helps transfer newly acquired teaching practices into classroom use (Showers, 1984 as cited in Knight, 2009).
|                                | • Contributes to higher student achievement scores (Showers, 1984 as cited in Knight, 2009).
|                                | • Promotes higher rates of implementation and continued use of new skill in the long run (Baker, 1983 as cited in Knight, 2009).

Table 1: Benefits found

6. SOME REFLECTIONS FOR FURTHER RESEARCH
As far as this communication, we lack a full perspective to be able to set forward a proposal for Spanish context. Although we have been through instructional and literacy coaching, searching through the most cited authors and the most recent ones, mainly through the Scopus database, there are other models we would like to deepen into such as: student-focused coaching, content-focused coaching, personal professional coaching, cognitive
behavioural coaching... Particular mention to peer coaching and its possibilities as we find that apart from the benefits coaching promotes in education (see table 1 above), peer coaching can be of “high-impact, just-in-time, self-renewing, low-cost, and easily learned” (Parker et al., 2008, p. 488) and, what is more, acting as a coach, a teacher contributes not only to the professional development of a colleague, but to his or her own (Bergen, 1996; Philips & Glickman, 1991 as cited in Van Driel, Beijaard, & Verloop, 2001).

REFERENCES


COACHING IN EDUCATION: WHAT ARE WE TALKING ABOUT?


Storytelling and living praxis in the pre-service teacher classroom

Brian Mundy

*Victoria University*
*brian.mundy@vu.edu.au*

**ABSTRACT**

At Victoria University in Melbourne many years have been spent developing a praxis model of education. Under this model praxis has been defined as ethical action for the public good. For the author praxis is focused around building theory from practice, to improve outcomes for teachers and students. The author’s personal educational theory on praxis has evolved into a living praxis pedagogy and model. In this model, the educator and pre-service teacher (PST) build upon initial understandings, evaluate progress, reflect and act in an ongoing reflexive process. In the Tertiary classroom this manifests itself through the action of storytelling. This presentation will explore the relationship between stories and living praxis and suggest a process of narrative inquiry that can be used in the Tertiary classroom. Stories from placement/practicum have long been used in teacher education classes. Diagrams will be used to present this process and how it can be understood. This presentation will describe how these stories can evolve into understandings and personal theories of practice. It will explore the narrative inquiry process of live-tell-retell-relive and unpack how this can be used in the classroom to help scaffold PST theorising. It will outline the collaborative processes that occur in the classroom, the roles of the teacher educator, the individual PST and of other PSTs. The presentation will use data from PSTs, teacher evaluations and teacher observations to provide evidence of the success of the approach undertaken.

**KEYWORDS:** Praxis, storytelling, narrative inquiry, pre-service teacher theorising

1. **INTRODUCTION**

In 2014 I was awarded a citation by the Office of Learning and Teaching for making an outstanding contribution to student learning. Since then I have reflected on my practice as a teacher educator to identify why PSTs respond positively to my teaching. This paper continues to explore the key factors I have identified that built this positive response from PSTs, (Mundy, B. 2015 p.394). I have also drawn upon my 30 years of secondary and tertiary teaching and the living educational theories published in my doctorate (2013) to better connect theory and practice.

A common challenge for teacher educators is to be able to effectively connect theory and practice and in particular to link the experiences of the PST in placement with those of the university setting. This paper explores how this
connection can be enhanced through the use of stories from placement and the teaching experiences of the lecturer. As a school mentor, I frequently heard my PST’s state, that many of their university studies were disconnected from the real classroom. I became a tertiary educator in order to develop and implement a curriculum and pedagogy that more closely links actual practice with the appropriate theory and that expresses an holistic, complex and constantly evolving approach, that can be more closely connected to the classrooms of 21st century PSTs. My teaching is predominantly in the second year program of the Bachelor of Education P-12 degree at Victoria University within which I use what I have termed a Living Praxis approach.

2. THEORETICAL FRAMEWORK

“We can now see the full quality of praxis. It is not simply action based on reflection. It is action which embodies...commitment to human wellbeing and the search for truth, and respect for others (Carr, W. and Kemmis, S. 1986, p.190).

At Victoria University in Melbourne many years have been spent developing our praxis model of education. Under this model Praxis has been defined as ethical action for the public good. For the author praxis is focused around building theory from practice, to improve outcomes for teachers and students.

Figure 1 summarises the key elements of the praxis model under the headings of research, pedagogy, underpinning values, assessment and curriculum. The author’s personal educational theory on praxis has evolved into a living praxis pedagogy and model. In this model, the educator and PST build upon initial
understandings, evaluate progress, reflect and act in an ongoing co-constructive, reflexive process to improve outcomes.

2.1. Empowering PSTs

An important element of my classroom practice is that of listening to student voice (Mitra, D. 2003) and the empowering of PSTs. My praxis classes begin with the opportunity for the PSTs to share their recent placement experiences, their challenges, issues, and successes. (Mundy, B. 2015 p.401) This is very important part of the class as it is a time to connect theory and practice and discuss what concerns our PSTs. Our Bachelor of Education degree involves a high degree of placement experience. In second year, PSTs attend their placement sites for 14 Tuesdays alongside 3 weeks of block placement. These Tuesdays involve the PSTs in completing an Applied Curriculum Project, focused observations of mentors, attendance at meetings and eventually small group and whole class teaching. Hence the first phase of our classes begins with an opportunity to de-brief on placement, share questions, identify and raise issues and celebrate successes. Listening to students is an important skill for young teachers to develop and that needs to be modelled. This phase may last up to 30 minutes.

The second opportunity for student input is the sharing of experiences, observations and reflections on a weekly theme. PSTs will bring along their observations, data sheets, student profiles, artefacts they have collected and their questions. This phase of the class can be quite extensive and consequently formal lecture components of the class may slide later into the session, and indeed may become part of a flipped curriculum process whereby the lectures are viewed after class with the learning circle discussion taking up the majority of class time.

2.2. A Living Praxis Approach

This reaction to student inputs and student voice can lead to a ‘living praxis’ experience.

“These theories are living in the sense that they are theories of practice, generated from within our living practices, our current best thinking that incorporates yesterday into today and which holds tomorrow already within itself.” (Whitehead and McNiff, 2006 p. 2)

In their first written assessment PSTs are asked to complete a praxis inquiry using the 5 stage praxis inquiry protocol. In the first stage PSTs are asked to choose a topic, identify between 3 and 6 questions covering ontological, epistemological and technical types. In stage two they describe the situation
relevant to these questions using observations from their placements. Stage three is explanations from the student, based on discussions with the mentor and the literature, regarding these observations. The fourth stage is personal theorising by the PST, what they think and this is finally followed by the change practice stage, when the PSTs re-imagine the classroom as they would like to see it. Praxis inquiry is one of the 8 signature pedagogies used throughout the education courses at Victoria University (Arnold et al, 2014). The full 8 signature pedagogies were listed on the mind map.
This protocol is now being used by the author informally throughout the discussions that are held in learning circles. In my classroom the learning circles are whole of class processes, whereas in other classes the learning circles are frequently smaller simultaneously occurring groups. My whole group learning circles exist to support the co-construction of theory by PSTs and lecturer. This is what I term a living praxis approach. The discussion within the circle follows the 5 stages of praxis inquiry with contributions from both PSTs and the lecturer leading to changed perspectives, understanding or new personal living educational theory.

“PSTs are continuously questioning and up-dating their personal understandings and theories for classroom management, assessment or catering for individual differences etc. In this way they are continuously linking theory and practice, and developing their own personal living theories of educational practice.” (Mundy, B. 2015, p.401)

3. METHODOLOGY.
This paper is the outcome of narrative inquiry (Clandinin, D.J. 2013) and self study (Samaras, 2011, Webster, L. and Mertova, P. 2007) by the author. Reflections have been recorded in written and visual journals that represent field data and then discussed with colleagues in praxis inquiry meetings and at presentations. Critical events have included these presentations and the narrative workshop led by Jean Clandinin in September 2016. The theory and conclusions developed through analysis of these events, discussions, observations, PMIs (Positives, Minuses, Improvements/Interesting) and SET (Student Evaluation of Teacher) results.

4. RESULTS.
Observed outcomes include:
- Development and refining of PST personal living educational theory
- Increased engagement and participation in class leading to positive evaluations
- Development of a community of learners
• Improved connections occurring between lived experience and theory
• PSTs leaving the class with strategies and ideas to improve future practice
• PSTs developing reflexive practice
• PSTs feeling more empowered
• Increased authenticity of discussion and experience

Visiting lecturer: “Thank you again for having me in your tutorial. I found the experience to be very valuable. What I liked the most about the tutorial was the framework of expectations that you have set up - this clarified the input of each student in the class and maintained everyone’s engagement….I liked the way you brought every student in and the sense that I got overall was that students were each valuing and respecting each other and themselves, and were invested in learning, in large part through sharing their experiences. That was wonderful to see, so inspiring.” Oct 2016

SET Semester 2 2015   SA   St Albans campus VU   F Footscray campus VU

<table>
<thead>
<tr>
<th>% Agree for Survey Questions</th>
<th>VU</th>
<th>Conditions</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Overall teaching quality satisfaction</td>
<td>82.2</td>
<td>100</td>
</tr>
<tr>
<td>2. Good at explaining things</td>
<td>82.0</td>
<td>100</td>
</tr>
<tr>
<td>3. Effort to understand student difficulties</td>
<td>79.1</td>
<td>100</td>
</tr>
<tr>
<td>4. Helpful feedback</td>
<td>76.9</td>
<td>100</td>
</tr>
<tr>
<td>5. Makes the subject interesting</td>
<td>78.0</td>
<td>100</td>
</tr>
<tr>
<td>6. Motivated the student to do their best</td>
<td>74.2</td>
<td>100</td>
</tr>
</tbody>
</table>

Figure 2: Student Evaluation Results

SET comments (Semester 2, 2015)

“Fantastic modelling of teaching. I like how you not only encouraged us to speak within the class, but also gave time for each person’s answer.”

“He allowed us to have a say in the class, with plenty of opportunity to share our ideas and feelings regarding placement or the topic being discussed in class.”

“I loved that the classes were discussion based and he made them interesting and inclusive. Every idea was built upon and the environment was comfortable and you felt like you could share your opinion.”
5. IMPLICATIONS/DISCUSSION.

5.1. Learning circles

As mentioned above the author makes use of learning circles to support the process of living praxis and the growth of living educational theories. The value of these learning circles is highlighted in Figure 3. The process enables PSTs to learn from each other, develop reflexivity and build confidence. It is frequently PST initiated and hence supports student voice. It is based around dialogue and importantly encourages PSTs to listen to each other.

Figure 3: The value of Learning Circles

Figure 4 diagrammatically summarises the relationship between Living Praxis and Learning Circles. At the centre is dialogue between PSTs, the mentor and the classroom lecturer. Surrounding this dialogue is the living praxis cycle based on the praxis inquiry protocol. I describe it as a cycle as after stage 5 there is the potential for new questions and an on-going spiralling of learning to occur. Around the outside of the praxis cycle are the key elements recognisable within an action research process. I believe this approach fits well alongside a teacher (PST) as researcher model (one of the signature pedagogies) as the processes being utilised by the PST align well with the action research process. During the course of the process PST frames of reference develop from naïve to more complicated.

Living praxis is a process that leads to the continuing refinement of personal theory. It is an ongoing, cyclical, action learning process. It is also a lifelong
learning process as the PST/teacher up-dates their understanding, theory and practice in this reflexive manner.

“Your theory is created from within your work and represents your present best thinking. It is always developing because you are always in the process of development. Your theory is not static; it is living, part of your life. It is your own living theory” (Whitehead, 1989, 1993).

The next figure (Figure 5) shows the process during a class when living theory is developing. It illustrates the roles played by the classroom lecturer and other students in helping to develop the living theory for an individual. It shows the distinctive stages of discussion that occur as the praxis protocol is being used to support the development of PST individual/personal theory and to assist the PST to re-imagine and change practice to improve outcomes in their classroom. It suggests stages of the process that are metacognitive, when internal dialogue is occurring (when the PST is reflecting, developing, considering, evaluating ideas) and also when external dialogue between individuals, peers and the lecturer are occurring. In this way figure 5 is attempting to unpack the intersubjective dialogue that is occurring within the
classroom. The figure also shows how the PST moves from an old position of understanding to a newer one which can indeed change the frame of reference of the PST. The process is also seen as one that can hopefully continue throughout the career of a PST as they continue to develop and refine their own living educational theories of practice. This is identified as a lifelong living praxis spiral reflecting connections back to action research cycles.

Figure 5: The process of living theory development during a class

5.2. Narratives, narrative inquiry and Living Praxis
My classroom is full of stories. Stories of practicum are told by PSTs, stories of past experiences are told by myself. As a narrative researcher I often tell stories of my experiences in school, completing my studies or indeed retell stories from other PSTs in previous classes. Stories from the recent experiences are shared followed by observations and stories related to the weekly theme such as assessment, classroom management or differentiation. It is particularly around and through these stories that the living praxis process described above is threaded.

The next couple of diagrams illustrate how stories and narrative inquiry fit into this living praxis approach. The diagrams show the complexity of the process as action learning, praxis inquiry and narrative inquiry processes are blended together within learning circles in the development of living educational theory.
and living praxis. Figure 6 uses a simplified systems approach and identifies the range of inputs, processes and activities that occur within the learning circle. This reflects the complex nature of the dialogue.

**Figure 6: Living praxis in a narrated complex classroom**

The final figure (7) presents the links between the praxis inquiry and the phases of storytelling that Clandinin (2013) describes. It is more of a flow chart suggesting the various processes that occur from the lived, to the tell, the retell and finally the relive stage.

"The stories lived and told in a narrative inquiry relationship are always a co-composition, an intentional co-composition. The stories are co-composed in the spaces between us as inquirers and participants." (Clandinin, D.J. 2013, p.24).

The stories told by PSTs and the teacher academic in the classroom have been lived by an individual in a particular context, they are then told to the group and as this occurs understandings develop for all participants in the learning circle. This represents the describe phase of praxis inquiry. Questions are asked by the teacher educator, by the individual, or other PSTs leading to discussions
of explanations (praxis explained). New understandings, personal theories may develop (praxis theorized). These may be shared further with the group or the mentor back at the school when a re-telling process occurs. Finally, after further discussion, changes may be identified and implemented (praxis changed) and the re-living process may occur.

For the teacher academic they too will follow this process. For them the lived stage may have occurred many years ago and it is often in the retell and relive stages that new understandings may still develop. Indeed stories may be utilized many times and understandings refined as a result.

6. CONCLUSIONS

For the students and the author there have been many positive outcomes. Student outcomes were summarized in the results section. For the author there has been

- an expanded understanding of living praxis
- an increased understanding of the role of storytelling in the PST classroom. Story telling in each of its phases contributes to understanding for both the student and the lecturer. Personal theories develop and eventually are implemented to improve outcomes.
- an improvement in teaching and learning practices
- further development of my own personal living theories
- increased opportunities to share new learning and understanding
- excellent feedback and evaluations from PSTs as demonstrated by the evidence presented
further opportunities to develop the thinking around narrative inquiry and praxis.

This will now extend into investigating how successful processes, such as those described, can be maintained and improved, in blended and on-line classrooms. This presents a major challenge as we go forward with the increased use of technology in our tertiary classrooms.

REFERENCES:


The Attention-Deficit Hyperactivity Disorder (ADHD) in the school context

Luís Martins Oliveira¹, Marcelino Arménio Pereira², Teresa Pires Medeiros³, and Ana Maria Serrano⁴.
¹Universidade do Minho, Portugal
luismicaelense@hotmail.com
²Universidade de Coimbra, Portugal
marc.pereira@fpe.uc.pt
³Universidade dos Açores, Portugal
tmedeiros@uac.pt
⁴Universidade do Minho, Portugal
serrano@ie.uminho.pt

ABSTRACT
Attention-Deficit Hyperactivity Disorder (ADHD) is currently seen as a lifespan disorder – an on-going disorder, the origin of which is multifactorial, based on strong genetic predisposition and neurobiological deregulation (Schmidt & Petermann, 2009). It is estimated that around 5% of children are affected (APA, 2014). It is also known that there is a high risk of other comorbidities (e.g., Oppositional Defiant Disorder), and other associated problems (e.g., low academic achievement) (Faraone et al., 2015).
This research was intended to analyze the impact of ADHD within a school context and the educational practices adopted with these students. To achieve objectives, a qualitative study (multiple case study) was conducted and a method of triangulating data for empirical validation was used. Specifically, a behavioral evaluation scale (the Vanderbilt ADHD Diagnostic Teacher Rating Scale) was used to assess students diagnosed (or being assessed) with ADHD (n = 105); a semi-structured interview was conducted with a sample of five teachers (each with a student diagnosed with ADHD); and the Individual Education Programs of these five students were analyzed.
Results highlight the heterogeneity and severity of ADHD (i.e., academic, behavioral and social problems) and, consequently, the urgent need for specific school intervention. On the other hand, there were several gaps identified (e.g., little interaction between the various agencies, a shortage of diagnostic support documentation, a lack of behavioral and cognitive-behavioral strategies).
It is imperative to create and implement a model of school attendance for students with ADHD that include signaling, assessment/diagnosis and intervention mechanisms.

KEYWORDS: ADHD, behavior, academic achievement, educational practices
1. INTRODUCTION

Attention-Deficit Hyperactivity Disorder (ADHD) is one of the most common neurodevelopmental problems in children, with a prevalence estimated to be 5.9% (Willcutt, 2012). It can seriously compromise the ability of children to adapt within the school context, specifically in academic and behavioral performance (Ek, Westerlund, Holmberg, & Fernell, 2011). In addition to the major characteristics (i.e., inattention, hyperactivity and impulsivity), in around 80% of cases, children with ADHD present other associated clinical conditions, among which the most common are the Specific Learning Disorders (SLD), Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), Anxiety Disorders (AD) and Depressive Disorders (DD) (Faraone et al., 2015; Kaplan, Dewey, Crawford, & Wilson, 2001). This accumulation of conditions bring out even more significant changes in behavior and learning, which present a greater challenge for professionals working in this domain (Crawford, Kaplan, & Dewey, 2006; DuPaul & Jimerson, 2014). Consequently, an early assessment is vital for planning intervention.

Primary health care services and schools are the places where the necessary support for children with neurodevelopmental problems are frequently allocated. However, these systems are disjointed, which leads to fragmentation in suitable care provision for this population (Power, Blum, Guevara, Jones, & Leslie, 2013). Despite the need for interdisciplinary collaboration between health professionals (e.g., pediatricians) and other school professionals (e.g., psychologists), it is well documented that research on collaborative practices between these stakeholders and entities is somewhat limited (Arora, Connors, Biscardi, & Hill, 2016; Power et al., 2010)

The aim of this study, therefore, is to:

(i) Analyze the impact of ADHD within a school context (i.e., at an academic, behavioral and social level);
(ii) Identify the collaborative practices and strategies adopted within the school for students with ADHD (i.e., multidisciplinary collaboration in signaling, diagnosis and intervention; differentiation teaching strategies in the classroom; education and special educational support measures).

2. METHODOLOGY

This is a multiple case study. The methodology used to triangulate data for empirical validation included the *Vanderbilt ADHD Diagnostic Teacher Rating Scale* – VADTRS, a semi-structured interview and document analysis.
2.1. Participants
The sample was made up of 105 students (n = 105) from the 1st Cycle in the 6 - 11 age group (M = 8.59; DP = 1.30; n6a = 4; n7a = 21; n8a = 24; n9a = 29; n10a = 19; n11a = 8), 15 (14.3%) girls and 90 (85.7%) boys. The children were divided into three groups according to ADHD presentation, specifically: 38.1% (n = 40) with inattentiveness (ADHD-I); 9.5% (n = 10) hyperactive-impulsive behavior (ADHD-H/I); and 43.8% (n = 46) Combined (ADHD-C).
From this sample, five students were specially selected (n = 5) with their respective teachers.

2.2. Inclusion criteria
The sample of 105 pupils included children from the six to eleven age group (signposted by their teachers to be with ADHD), which complied with pre-established cut-off points based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) diagnostic norms and the scoring instructions for the *Vanderbilt ADHD Diagnostic Teacher Rating Scale* (our reference instrument). In the multiple case study (n = 5) the only students involved were those with a formalised integrated diagnosis (i.e., with reported clinical/psycho-pedagogical ADHD) and their respective teachers.

2.3. Measures and procedures
The *Vanderbilt ADHD Diagnostic Teacher Rating Scale* – VADTRS (Wolraich, Feurer, Hannah, Baumgaertel, & Pinnock, 1998) was translated and adapted into Portuguese. To prepare the interviews, a script was designed (which was previously validated) with the inclusion of various sections (i.e., differentiated teaching strategies; multidisciplinary approach, etc.) The document analysis included personal student case files (e.g., the Individualized Education Programs; clinical/psycho-pedagogical ADHD reports).
Using various techniques, the study was conducted in three distinct phases, following a specific order: (1) administering the VADTRS to 76 teachers of the 1st cycle, who stated that they had students with ADHD; this instrument was also used to select the subjects for the multiple case study (five students and their teachers); (2) conducting interviews with the five teachers of the 1st Cycle students who were specially selected; and (3) analyzing the personal case files of the five students with a confirmed diagnosis of ADHD.
The data was analyzed using the IBM – *Statistical Package for the Social Sciences* (SPSS) – Version 21. Spearman’s Rank Correlation Coefficient was used to
measure the correlation between groups with ADHD and variables (i.e.,
associated clinical conditions, academic and behavioral problems).
Qualitative data was organized and analyzed using the Maxqda [Qualitative
Data Analysis Software] and a document analysis method (Categorical Data
Analysis technique).

3. RESULTS

By using the VADTRS, it was possible to verify that 41.9% of the students
demonstrated three or more symptoms of Oppositional Defiant Disorder
and/or Conduct Disorder, while 32.4% presented symptoms of
Anxiety/Depressive Disorders. The data correlated between the various
groups confirmed that all the subjects showed externalizing behavioral
problems (Oppositional Defiant/Conduct Disorder). However, the strongest
associations were within ADHD-C and ADHD-H/I groups (rho = .65, p <
.01) and (rho = .61, p < .01), respectively. In contrast, internalizing problems
(Anxiety and Depressive Disorders) are exclusively linked to inattention, with
a moderate correlation, but with statistical significance (rho = .25, p < .01).
Problems in academic achievement (i.e., reading, mathematics and written
expression) and classroom behavior (i.e., relationships with peers, assignment
completion, organizational skills, following directions/rules and disrupting
class) were evident in 81.9% and 98.1% of the participants (n = 105),
respectively.
Problems in academic achievement were linked only to the group with
ADHD-I (rho = -.38, p < .01).
With regard to problems in classroom behavior, the instrument assessed
different aspects which were organized and subsequently analyzed in three
components: social problems (relationships with peers); (ii) deficits on executive functioning (assignment completion and organizational
skills) and (iii) externalizing problems (following directions/rules and disrupting
class).
All the groups demonstrated problems in relationships with their peers, with
correlations slightly higher in ADHD-C and ADHD-I groups (rho = -.45, p <
.01) and (rho = -.42, p < .01), respectively.
With regard to deficits in executive functioning and externalizing problems,
correlations for inattentiveness were more significant than for difficulties in
executive functioning - organizational skills (rho = -.45, p < .01) and
assignment completion (rho = -.59, p < .01). In the combined and hyperactive-
impulsive cases, there were more significant correlations for externalizing
behaviors - following directions/rules (rho = -.67, p < .01) and disrupting class
(rho = -.66, p < .01), respectively.
An analysis of the personal files of the five specially selected students with ADHD (n = 5) showed that they had the same problems in learning and behavior within the classroom.

Of the five cases analyzed, three failed at least one academic year and four have an Individualized Education Program (IEP). Among the IEPs reviewed, three students were being treated with medication and were taught using other modified teaching/learning strategies (mainly, personalized learning support and adjustments in the evaluation process) but, in three of these IEPs, there was no significant behavioral or cognitive-behavioral treatment for students with ADHD.

An analysis of the interview indicated weak multidisciplinary collaboration in the intervention with these students (specifically, the lack of support by psychologist and/or other qualified experts in the school for teachers), but more importantly, there was poor coordination with external agencies for diagnosis (e.g., lack of contacts between specialists and educational institutions and delays in delivering documentation - clinical/psycho-educational assessment), with serious consequences, specifically, in the context of special education services.

4. IMPLICATIONS/DISCUSSION

The pattern of results clearly shows that the three groups of children (i.e., ADHD-I, ADHD-H/I and ADHD-C) showed problems in adaptive school performance and that they can be differentiated from each other through different sets of difficulties.

These results linked to evidence highlighting symptoms of inattention are predictors of poor academic performance and are largely associated with internalizing disorders (e.g., Jaekel, Wolke, & Bartmann, 2013; Elkins, Carpenter, Pincus, & Comer, 2014), while hyperactivity/impulsiveness are more associated with problems in behavioral regulation (e.g., aggressive and anti-social behaviors) and externalizing disorders (e.g., Elia, Ambrosini, & Berrettini, 2008; Hofvander et al., 2011).

Although there is no doubt that there is the relationship between ADHD symptoms (i.e., inattention and hyperactivity/impulsivity) and their expression in comorbidities and academic/behavioral problems, this study rekindles the discussion on the differences between these cases, namely between the combined ADHD and inattention and the variables analyzed. This suggests that they may be derived from secondary aspects and styles of attention, simultaneously fueling the need for a more in-depth assessment of the underlying neuro-cognitive dimensions (e.g., Ferrin & Vance, 2014), as well as
the role of Sluggish Cognitive Tempo (Capdevila-Brophy et al., 2014) and of Specific Learning Disorders in this equation (e.g., Weiss et al., 2003). One of the most serious consequences emerging from the various problems described above is school retention, a situation which affects three out of the five students analyzed at least one a year 2014/2015, a fact that has already been duly documented in the literature (e.g., Loe & Feldman, 2007).

We observed that four of the students analyzed used Special Educational measures and only one with educational support, throughout their schooling. This scenario does not differ much from data presented by Spiel et al. (2014), in which of the 97 students analyzed, 61.9% had an IEP and 38.1% an Educational Support Plan (504 Plan). Other similarities were found with this study, namely that the four IEPs analyzed identified the problems/symptoms and indicated the Special Education measures (e.g., personalized learning support and adjustments in the evaluation process, etc.), consistent with current statutory regulations, but in four cases no other Evidence-Based Practices were included (e.g., behavioral strategies).

Although medical treatment has been effective in reducing the symptoms of ADHD - a strategy which was implemented with three of the students analyzed - the results are often insufficient to overcome the many academic and social problems confronting these children (Fabiano, Pelham, Gnagy, & Burrows-MacLean, 2007). In effect, the literature highlights the need for implementing complementary school intervention strategies (e.g., behavioral, cognitive-behavioral and academic) (DuPaul, Gormley, & Laracy, 2014). Considering the many challenges that this problem presents, it is the consensus that the best therapeutic approach for children with ADHD should be grounded in the concept of transdisciplinary and multiple methods. Professionals within the areas of Health (e.g., pediatricians, psychiatrists) and Education (e.g., teachers and psychologists) should be involved in the assessment, diagnosis and intervention of ADHD (Weyandt & DuPaul, 2013). This study highlights the lack of coordination of multidisciplinary mechanisms (e.g., schools do not have established communication strategies with internal / external agencies with human / material resources), which has been reported earlier by Power et al. (2013).

5. CONCLUSIONS

Children with ADHD experience a set of difficulties that seriously compromise their school attainment, specifically problems in learning, behavior and interpersonal relations. Symptoms of inattention are the ones that affect learning the most and are frequently linked to internalizing behaviors, while
The attention-deficit hyperactivity disorder (ADHD) in the school context

Hyperactivity/impulsiveness contribute to the manifestation of externalizing behavioral problems.
Despite all the vicissitudes, the implementation of methodologies is insufficient to guarantee improvement in the academic and behavioral success of these students.

At the same time, schools have a duty and responsibility to guarantee a model of care that would include partnerships with external agencies and a multidisciplinary team who, in collaboration with teachers and parents, would be able to identify effective signaling, diagnostic and intervention mechanisms for students with ADHD.

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ABSTRACT
This paper analyzes and interprets the early meetings of a network of individuals in seven universities in Chile, supported by one international agency and one international critical friend. The network of 16 teacher educators focuses on the introduction of self-study of teacher education practices following the publication of a book that makes self-study methods accessible to Spanish-speaking teacher educators. The core data for analysis are recordings of the first four meetings of the network. The initial meeting focused on creating a trusting environment and explored basic questions such as ‘What is a self-study group?’ and ‘How is self-study different from reflective practice?’ Self-study is being explored from personal, professional, and institutional perspectives. Small groups within the network are working in several formats: weekly meetings with a critical friend, biweekly video analysis of one person’s teaching, and exit slips written by students and analyzed with critical friends. The group has identified several important features of the network that they find encouraging: When they attend and participate, they have a strong sense that they are not alone in their work. Also, the meetings provide space and encouragement to think differently about teaching teachers. The paper presents illustrative accounts of early changes that members of the network have made in their teaching and the effects that they have observed and documented in personal practice. Conclusions focus on strategies for constructing and supporting a self-study network and the role of critical friends in fostering trustworthiness in data analysis.

KEYWORDS: self-study network, double-loop learning, critical friendship, active listening

1. INTRODUCTION
In Chile and much of Latin America, recent educational improvements have focused mainly on teacher education programs and the students in those programs. Less attention has been paid to the teacher educators themselves (Fuentealba & Montenegro, 2015). In a sense, then, the teacher educator is
something of an invisible player in the educational arena. The recent publication in Spanish of a book introducing self-study of teacher education practices to teacher educators working in Spanish (Fuentealba & Hirmas, 2016) has provided a unique opportunity to focus on the work of the teacher educator by making the methods of self-study research accessible to Spanish-speaking teacher educators.

During May 2016, a group of 16 academics from eight universities from different regions of Chile came together around a common focus of action to collaboratively address the various issues that arise when working in teacher education and to explore the potential of self-study methods in the context of teacher education programs in Chile.

2. THEORETICAL FRAMEWORK

This way of organizing is unique in Chile and revealed the tension between a traditional and an alternative way of understanding the relationship between theory, practice and research in teacher educators, as Schön has pointed out:

A practitioner’s stance toward inquiry is his attitude toward the reality with which he deals.

According to the model of technical rationality, there is an objectively knowable world, independent of the practitioner’s values and views. In order to gain technical knowledge of it, the practitioner must maintain a clear boundary between himself and his object of inquiry. In order to exert technical control over it, he must observe it and keep his distance from it—as Bacon said, commanding Nature by obeying her. His stance toward inquiry is that of spectator/manipulator.

In a practitioner’s reflective conversation with a situation that he treats as unique and uncertain, he functions as an agent/experient. Through his transaction with the situation, he shapes it and makes himself a part of it. Hence, the sense he makes of the situation must include his own contribution to it. Yet he recognizes that the situation, having a life of its own distinct from his intentions, may foil his projects and reveal new meanings.

From this paradoxical source derive the several features of a stance toward inquiry which are as necessary to reflection-in-action as the norms of the on-the-spot experiment and the uses of virtual worlds (Schön, 1983, p. 163).

These teacher educators were particularly interested in sharing those formative moments of practice that are traditionally addressed in isolation. Another important element was the need to make explicit that the teacher educator is not a member of a single institution, but is a relevant contributor to all who participate in the self-study process. In this context, teacher educators were invited to form inter-university groups to establish critical friendships.

[Critical friendship] champions the co-construction of knowledge through collegial inquiry, conversation, and collaborative reflection within a climate of mutual vulnerability and risk-taking, trust and support (Cochran-Smith & Lytle, 1991;

The meetings have focused on teaching practices, including possible changes and their consequences not only for students’ learning, but also for the traditional ways of understanding the formative process and for new understandings from interaction with others. This supports identification of assumptions implicit in current practices and generates motivation for change. Our goal is to support each other in double loop learning:

“In single loop learning, we learn to maintain the field of constancy by learning to design actions that satisfy existing governing values. In double loop learning, we learn to change the field of constancy itself” (Argyris & Schön, 1974, p. 19). While single-loop learning focuses on actions and their consequences, double-loop learning examines consequences in terms of assumptions and common-sense beliefs and practices (Fuentealba & Russell, 2015, p. 228).

3. METHODOLOGY
Three working groups were organized, as shown in Table 1. In addition, opportunities for group discussion and linkage were created. Two national facilitators accompany, record and act as critical friends to the participants’ questions, analyses of practice and proposals for change. Every three months there are extended meetings where members of the groups share their progress and challenges and act at the same time as a sounding board for other of the participants. The group also has the support of an international critical friend who has considerable experience in self-study. That friend listens and encourages deeper analysis of topics and issue.

<table>
<thead>
<tr>
<th>Group</th>
<th>Members</th>
<th>Procedure</th>
<th>Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 U1: Lorena, Elizabeth, Rosa U2: Carmen, Jesús, Pablo</td>
<td>Students’ exit slips from different courses, Weekly meeting of local critical friends, monthly meeting of inter-university critical friends.</td>
<td>Analysis of exit slips between critical friends of the same institution, then shared with inter-university team</td>
<td></td>
</tr>
<tr>
<td>2 U3: Alicia, Mabel U4: Mariluz, Solange</td>
<td>Video recording of classes, Recording events in personal blogs</td>
<td>Analysis of weekly discussion meetings</td>
<td></td>
</tr>
</tbody>
</table>
| 3 Alejandro (U5), Eduardo (U6) David (U7), Alejandra | Video recording of classes, Monthly meeting with critical friends | Monthly discussion of class recordings, with one’s own
The meetings of this network have been audio-recorded since the initial meeting and are available for analysis. The initial meeting focused on creating a trusting environment and explored fundamental questions such as “What is a self-study group?” and “How is self-study different from reflective practice?” The second meeting focused on the early development of the group and on progress in providing support to each member for exploring changes to teacher education practices. Sub-groups within the network are working in a variety of formats, including weekly meetings with a critical friend, bi-weekly video analysis of one individual’s teaching, and exit slips written by students at the end of each class and then analyzed with two critical friends.

4. RESULTS
4.1 Stance toward Self Study
The first results show that participating in different instances of exchange begins to question the traditional way of approaching research, as well as the meaning of that research, as one participant of the group explained:

The classical notion of research undoubtedly stresses the group’s own conversations, even more so when its members assume this double function: on the one hand, reviewing their own practice and keeping the requested records, and on the other hand, to assume the role of critical friend for his peers in this project. This tension was mitigated when the group appropriated the notion of self-study as an instance for joint reflection of one’s practice, in a context of building a learning community. (Alicia, U3)
In the same way, self-study provides the possibility of relating in a different way with the future teachers, emphasizing that the bond with them is not only “I teach—you learn,” but also an instance where both are affected:

In relation to learning about my reflective process, in relation to my students, although they are not conclusive learnings, I managed to identify that the reflection model that I intended was focused on my expectations and was self-referential. I wanted students to reflect on the topics I thought were the right ones, leaving aside the personal reflective process of each of the students in my mentoring team. (Mariluz, U4)

Deepening the above, this way of relating implies accepting the creation of new opportunities for interaction:

Learning to negotiate values and meanings with students implies openness and respect for the diversity of opinions, ways of thinking and facing educational processes. One of the aspects that has emerged and stressed the relationship with the students is the “touch and tone” or pedagogical sensitivity that I have when I interact with them. (Solange, U4)

However, this is not without difficulties, since it means making visible our traditional patterns of understanding research and the pedagogical relationship are stressed:

It’s been difficult to focus on the researcher and what happens to him throughout the process of analyzing his teaching, rather than on the teaching strategies themselves. Achieving it has meant a concentrated effort. (David, U7)

3.2 Critical Friendship
The existence of conditions that favored trusting one another, being explicit and having the ability to propose ideas, have been valued as a support that breaks with the tradition of the isolated work of the teacher educator:

From its Greek origin, friend (in Spanish) is a word composed by (“without”) and ego (“I”), so friendship would mean loving without ego. This implicit agreement in a critical friendship allowed us to establish a place for trust, respect, affection and generosity, indispensable conditions for achieving transformation (Mariluz, U3)

The group distinguishes between collaborative work and critical friendship, assigning the latter the value of allowing one to return to one’s own assumptions, thereby allowing new actions,

While recognizing the value of collaborative work, the creation of a professional learning community has involved immersing itself in a space of complicity where
generosity, openness, humility and commitment have facilitated an open dialogue between the participants (Alicia, U3).

Certain fundamental conditions for self-study arose, like the capacity for active listening and emotional support of the group, which would enable opportunities for analysis and subsequent implementation with future teachers:

The active listening of the companions as well as their reflections have greatly helped my own reflection, putting into tension elements that I might have not noticed if it hadn’t been for them. In these dialogues, for example, I understood that my practical knowledge was greater than what I believed, and that this knowledge was valued and shared by my community, which allowed me to considerably reaffirm them. (Alicia, U3)

3.3 Double-Loop Learning
Among the members begins to show how the spaces of exchange are constituted as generators of questioning regarding the certainties of the trainers, giving way to questioning regarding the assumptions they have at the time of action:

What I learned first was related to my belief system. From the conversations with critical friends about the characteristics of our biographies, the first belief that came to my attention was that of real openness, [as I asked myself] to what extent I practiced real listening, considering that I acted as if I had the answer to all the problems of the students. There was no room for uncertainty: the world was one way and I knew what it was and my duty was for the students to see this world as I showed it to them. Acting within a good and flexible climate, rigid beliefs underlie the “ought to be,” “the truth” and “the correct.” (Mabel, U3)

At the same time, it has allowed us to approach in a different way the relationship with students in the learning process

Becoming aware of my own beliefs and my teaching practices has tightened my approach to students, continually asking myself how much I am helping them build their teaching identity, having respect for their own ways of looking at the educational process. Moreover, not imposing my own ways of thinking about it. The figure of authority as the owner of truth has emerged strongly and reframes new ways of relationship and approaches for building up and redefining my own understandings and beliefs, as well as how to help students to observe, pose and rethink their own understandings and beliefs. (Solange, U4)

In this sense, taking into account the students’ voice means influencing the belief system of the group.

The responses of my students have changed the axis of my reflection: it seems that what I thought I could achieve, maybe I did, but not for the personal reasons I
believed. The road just begins, after more than 20 years of teaching, I have found a new challenging road, and I am happy for it. (Jesús, U2)

5. DISCUSSION AND CONCLUSION
Despite its recent creation, the members of the self-study network have responded quickly and positively to the idea of working with a critical friend. Attendance at meetings and participation in self-study methods have generated a strong sense that individual members are not alone in their work.

Analysis of data shows that creation of the self study network has allowed the teacher educator members to explore needs, beliefs and previous assumptions regarding teaching and learning, while at the same time receiving the emotional support that makes this possible. Small and large group meetings have allowed sharing, comparing points of view, questioning patterns of action, and proposing new possibilities, all within a larger context related to addressing in new and different ways the familiar processes of teacher education, where the future teacher has the opportunity to see their teacher educators enacting processes similar to those required of them in their program.

The self-study network is possible because it provides a safe environment for questioning practices and identifying underlying assumptions previously unrecognised. There is a need to support with evidence, mainly with the voices of future teachers, the analyses carried out by teacher educators. Network meetings are providing encouragement for thinking about teaching in new ways. When changes in practice are attempted, efforts are made to identify the underlying rationale, to document the responses of students, and to tease out the assumptions implicit in familiar and new practices in teacher education classrooms.

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Could self-determined learning be a useful method to increase self-efficacy in mathematics and to reduce math anxiety?

Marcut Ioana Gabriela

Lucian Blaga University of Sibiu, Romania
ioana.marcut@ulbsibiu.ro

ABSTRACT
Our students are prepared to become primary school teachers. In the last years, we have observed that their competences in mathematics are lower and lower and they even claim a math anxiety, caused by their previous experiences as pupils. The majority of our students have graduated from a humanistic high school and they haven’t had any contact with mathematics during the last 2-3 years.
Self-determined learning, provided by heutagogy, has been experimented in teacher education and we have applied it to our postgraduate students who intend to become teachers as a minor. Self-determined learning means a flexible curriculum, according to the students’ needs, a mature way to fill the gaps in mathematics literacy and a method to bring the students closer to mathematics by themselves.
The basic question of the study is: Can self-determined learning increase self-efficacy in mathematics and reduce math anxiety?
We used questionnaires at the beginning and at the end of the experiment to establish the degree of math self-efficacy and math anxiety. In parallel, a test was administered to measure the students’ math literacy, with the aim to make them aware of the needed competencies to teach math in the primary school.
During the intervention, the students made their own plan to learn, searched resources, cooperated with their peers, shared experience. The teacher’s role was to guide them when needed and to help them to reflect on their work and their acquisitions. The results showed an increased math self-efficacy and a lower math anxiety. The students became more confident in their capability to teach mathematics.

KEYWORDS: math self-efficacy, math anxiety, heutagogy, self-determined learning.

1. INTRODUCTION
This study was generated by three important problems which occurred in the last years and made us to revise our attitude on teacher education.
First of all, in its communication - A new Skills Agenda for Europe (Brussels, 10.6.2016), the European Commission establishes that “People need a minimum level of basic skills, including numeracy, literacy and basic digital
skills, to access good jobs and participate fully in society. These are also the building blocks for further learning and career development. Around a quarter of the European adult population struggles with reading and writing, and has poor numeracy and digital skills”. The basis of numeracy is build in the primary school and it is important to have good prepared teachers in language and mathematics, to be able to form these competences to their pupils. In the same material, it is stipulated the significance of the teaching profession: “increasing the attractiveness of the teaching profession would stimulate talented young people to pursue this career”.

The second problem arisen in Romania in 2012. A new reform in education imposed a new curriculum for the primary school. It started with the preparatory class (6-year old children) and this year (2016/2017) it arrived to be applied to all primary school, until the fourth class. This new curriculum is based on competences in stead of objectives and its provisions as content are bushier than before. It claims better prepared teachers in the conditions when our students are less skilled in mathematics that the previous generations (and this is the third problem).

First of all we tried to find the reasons of their poor math literacy. One of them is that they have graduated a humanistic high school and they had any contact with mathematics during the last 2-3 years. Examples from the literature proved that the math competences are correlated with math self-efficacy and math self-concept in a direct way and in inverse variation with math anxiety (Jameson and Fusco, 2014).

We tested the students’ self-efficacy in mathematics, math self-concept and math anxiety and we decided that a new method to teach mathematics in university is strongly recommended. Self-determined learning, provided by heutagogy, seems to be appropriate to increase the self-efficacy in mathematics and math self-concept, and to reduce math anxiety.

2. THEORETICAL FRAMEWORK
2.1. Math-anxiety, math self-efficacy, math self-concept

A lot of researchers consider the mathematical literacy as one of the most important skills that a student can possess a condition to attain relevant careers (Shapka et al, 2006). In the same time, outside of the careers, others emphasize its significance in the every day life (Coffey, 2011). However many adults dislike and avoid math, even those who are competent in math. The reason of this dislike and avoidance is likely of combination of math anxiety and low confidence (Jameson and Fusco, 2014).

Math anxiety is defined by Richardson and Suinn (1972) as a feeling of “tension and anxiety that interferes with the manipulation of numbers and the solving of mathematical problems in a wide variety of ordinary life and academic
situations”. It is related to decreased exposure to math, decreased enjoyment of math and decreased self-confidence in math (Aschcraft et al, 1998). The research identified an inverse relationship between math anxiety and performance (Jameson, 2013a).

Individuals in particular domains have higher levels of anxiety than others. For instance, the pre-service education students and in-service elementary school teachers consistently report higher levels of math anxiety than individuals in other fields (Bursal and Paznokas, 2006; Malinsky et al, 2006).

Math anxiety is developed by individuals who are low in math self-efficacy and self-concept.

*Self efficacy* was defined as the belief that a person can successfully execute a desired behavior to result in a desired outcome (Bandura, 1993). Also, *self-concept* includes both general and specific perceptions an individual holds about himself (Marsh and Shavelson, 1985). Both, self-efficacy and self-concept are negatively correlated with math anxiety (Lee, 2009). Self-concept contains a self-efficacy component, particularly in mathematics (Jameson, 2013b).

The constructs of efficacy and concept are important to the success of the students and specifically within the domain of mathematics and math anxiety are connected to students’ mathematical literacy and future work as teachers in primary school.

### 2.2. Heutagogy and self-determined learning

Heutagogy was defined by Hase and Kenyon in 2000 as the study of *self-determined learning*. Heutagogy applies a holistic approach to develop learner capabilities, with learning as an active and proactive process, and learners serving as “the major agent in their own learning, which occurs as a result of personal experiences” (Kenyon & Hase, 2010). A heutagogical learning environment facilitates development of capable learners and emphasizes both the development of learner competencies and the development of the learner’s capability and capacity to learn (Ashton & Newman, 2006; Blaschke, 2012).

In self-determined learning, it is important that learners acquire both competencies and capabilities (Hase & Kenyon, 2007). Competency can be understood as proven ability in acquiring knowledge and skills, while capability is characterized by learner confidence in his or her competency and, as a result, the ability “to take appropriate and effective action to formulate and solve problems in both familiar and unfamiliar and changing settings” (Gardner et al, 2008; Blaschke, 2012).

The University of Western Sydney in New South Wales, Australia, is an example of one institution that has implemented a heutagogical approach to its *teacher education program* by redesigning programs to integrate learner-
directedness through blended learning. The university has identified the following benefits: improved teacher outcomes, more capable teachers, better-prepared for the complexities of the learning environment, increased learner confidence in perceptions etc. (Ashton & Newman, 2006; Blaschke, 2012).

3. METHODOLOGY
The purpose of this study is to explore the practicality and applicability of the heutagogical framework to the students who are preparing to become primary school teachers. The focus is to find out if a self-determined learning model can be used as a workable learning and teaching means to increase the math self-efficacy and self-concept and to reduce math anxiety to the students, future primary school teachers.

3.1. Research questions
The basic question of the study is: Can self-determined learning increase the self-efficacy in mathematics and reduce math anxiety? The sub-questions are divided in two categories. First is to determine the level of self-efficacy, self-concept, math anxiety, math literacy and the correlation between them in the group of students. The second is to compare these levels at the beginning and at the end of the heutagogical intervention and to decide if the differences are statistically significant.

3.2. Subjects
The target population of the study consists of 61 students, all female, enrolled in the first year, which are prepared to work as primary school teachers. Mathematics is a compulsory course for this specialization. Its aim is to provide the students with the necessary competences to be able to teach mathematics in primary school.

3.3. Instruments
The method to assess the math self-efficacy, self-concept and math anxiety was the questionnaire, and for math literacy a test was conceived. The questionnaires were elaborated according to Schulz (2005), as follows: Mathematics self-efficacy was assessed through student ratings of their confidence in solving eight real-life mathematical tasks. The resulting scale has an average reliability of 0.84. Mathematics self-concept was measured with five Likert-type items asking students to rate their agreement with self-judgments regarding mathematics. The average internal consistency is 0.89.
Mathematics anxiety was assessed using five Likert-type items asking students to rate their agreement with statements indicating emotional stress when learning mathematics. The reliability is 0.92.

4. RESULTS.
4.1. Initial data analysis – identification of the problem
The initial questionnaires’ outcomes analyze indicates that the students of the group have a self-efficacy slightly above the scale average. The self concept measured shows a level slightly under the scale average. The math anxiety questionnaire reveals a degree of anxiety under the scale average. The correlation between math self-efficacy and math self-concept is a positive one, of 0.59. The math anxiety and math self-efficacy are in inverse correlation, but the coefficient is only – 0.35, while the correlation between math self-concept and math anxiety is more important, – 0.54. The results of the mathematical test are insignificant correlated with the questionnaires data.

4.2. Problem solution
The first part of the heutagogical design process is defining the learning contract (Blaschke and Hase, 2016). The student and teacher identify the learning needs, depending on students’ competences proven by the test and in function of the primary school mathematics curriculum. This is the moment when the student becomes aware of her knowledge and skills and of the requirements of teaching profession. The second part is to develop the learning activities, in function of the student’s needs. It is important to propose challenging tasks to motivate the students. All this time, the teacher provides support and formative feedback. The last part is the evaluation of the learning, in order to determine whether the agreed-upon outcomes have been achieved. The student is the primary assessor of her learning.

The design elements in self-determined learning are: exploration, creation, collaboration, connection, sharing and reflection (Blaschke and Hase, 2016).

Exploration. During the learning activities, the students were encouraged to explore different resources, to find teaching-learning materials useful and relevant. For mathematics, there are important the real-world data, problems from the daily life. The teacher offers support if necessary.

Creation. An important design element of heutagogy is giving the learner the freedom to create. Based on resources from the environment, the students are encouraged to create and solve practical problems.

Collaboration. Collaboration is a key element for heutagogy and it is important in mathematics, where the students can learn from each other. Usually, they
understand better the solving methods of the colleagues than those exposed by the teacher.

*Connection.* The students are encouraged to keep in touch outside of the school, using the media, with the purpose to discuss about the learning tasks. They are doing connections with other domains too, to find practical applications of the mathematics.

*Sharing.* By sharing information with each other, the students were able to learn from their discoveries and experiences. In the same time, the student understands better explaining to the others his own methods, algorithms, ways of problems analyze.

*Reflection.* In many cases, reflection after the learning process is neglected. It is important that the learners have opportunities to reflect on the new knowledge gained, new abilities and on the learning process. At the end of the course, the students shared their opinions on the experience and the discoveries made during the learning process, which they will be able to apply in their future work in primary school.

### 4.3. Problem solution evaluation

At the end of the study, the questionnaires were applied again, with some different items, but with the same structure. All the three revealed better results, the math self-efficacy and self-concept increased and the math anxiety reduced. To decide if the results are significant, we used the z-test. The value obtained for z in the first case (self-efficacy) was 2.87, which entitles us to affirm that the difference is caused by the pedagogical intervention, not by hazard. Conversely, in the case of math self-concept, the z-value was only 0.35, the modification was not significant. For the third questionnaire we obtained 1.81, under the limit too.

The answer to the research question is that self-determined learning can increase the students’ self-efficacy in mathematics in a statistically significant way. Math anxiety was reduced, but we can not be sure that the pedagogical intervention was the cause.

### 5. DISCUSSION

The results of the study reveal an increase of math self-efficacy and math self-concept and an abatement of math-anxiety in the population investigated.

The z-test proved that only in the case of math self-efficacy this increment is due to the pedagogical intervention. The z value obtained for math-anxiety is near the minimum accepted as significant. Concerning math self-concept, the improvement is not a consequence of the heutagogical design. Looking from a realistic perspective, it is difficult to alter the math self-concept in a short period.
A weak point of the study is the duration: it was conducted over a semester. It should be repeated the next years, to compare the results.

During the intervention, we used real-world data, problems from the daily life, resources from the environment, practical applications of mathematics, and connections with other domains. These are the reasons for the increase of math self-efficacy.

Contextualizing mathematics and making it meaningful and relevant for the students are implications for the teaching practice, especially in the case of primary teacher education.

6. CONCLUSIONS
We must be aware that our students are individuals with their own opinions, beliefs, concepts, and anxieties. Mathematics is considered a stress factor by a lot of students, particularly whether they have to learn it with the purpose to be able to teach it later.

In the teacher education, we have to find the way to increase the math self-efficacy and self-concept and to reduce the math anxiety, as possible.

A solution can be an adapted curriculum, an open education and to involve the students themselves in their training, using self-determined learning opportunities. In general, the primary school teacher students are more aware than other students of the necessity of a good preparation in mathematics for their future work. For them, self-determined learning is a useful method to increase self-efficacy in mathematics and to reduce math-anxiety.

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COULD SELF-DETERMINED LEARNING BE A USEFUL METHOD TO INCREASE SELF-EFFICACY IN MATHEMATICS AND TO REDUCE MATH ANXIETY?


The DidaSco Project: a training program for the teachers’ professional development

Loredana Perla¹, Viviana Vinci², and Laura Sara Agrati³

¹University of Bari, Italy
loredana.perla@uniba.it
²University of Bari, Italy
viviana.vinci@uniba.it
³University of Bari, Italy
laurasara.agrati@gmail.com

ABSTRACT
Continuing professional development is the perspective from which policy makers promote the quality of teaching today. The development of teachers’ professional identity requires different approaches and models of teacher’s training: self-awareness, reflection on/in action, devices for improvement of different kinds of professional skills (disciplinary skills; pedagogical and transversal skills; soft skills; organizational and management skills etc.). In the last few years the Italian National Plan of Teachers Training (PNF) had to deal with continuing professional development providing a univocal governance model and standards of teachers’ training quality.
The paper describes the pedagogical model, methodologies (of organization) and specific devices of DidaSco Project, a Continuing professional development teachers’ training program developed at the University of Bari.
DidaSco Project is based on a collaborative approach that arises from the importance of a partnership between researchers and teachers and it is carried out with regard to PNF: the course catalogue is linked to the PNF teacher’s training priorities; the structure of each course holds together theoretical knowledge, documentation and action research; the ‘prototype’ device is tested into/inside teaching practice at school.
As an example of ‘multi-level’ training program, the rationale of DidaSco Project could be a specific object of continuing professional development studies.

KEYWORDS: continuing professional development, teachers training, collaborative approach, prototype.

1. THE ROUGH ROAD OF CPD
Continuing professional development is the perspective from which policy makers promote the quality of teaching today. (Eurydice, 2015; Morgan, Neil 2003; OECD-TALIS, 2009; Cochrane-Smith & Lytle, 2001; Walling e Lewis, 2000). It is considered to be a necessary condition to enhance the quality of
school education (TALIS, 2009; European Commission, 2012) and guarantee the national development (v. ‘Europa 2020’ Strategy; Caena, 2017).

More generally, continuing professional development, as a term, refers to learning activities that professionals engage in to develop and enhance their abilities (GTCE, 2005; Snow-Renner & Lauer, 2005): it combines different methodologies to learning, such as training workshops, conferences and events, e-learning programs, best practice techniques and ideas sharing, all focused for an individual to improve and have effective professional development.

From the teacher education specific point of view, the CPD is even more complex. Morgan and Neil (2003) examined the complex set of options and requirements facing teachers, from qualifying as a teacher to developing skills through middle and senior roles, and continually improving teaching skills. The authors found out also that the most effective CPD learning activities are the ones that ‘gradually extend the reaches of teachers’ intellect, focus their energies more efficiently and, for the most part, become more caring, wise, sanguine’ (Hayes, 2011, p. 120). This kind of activities allows ‘teachers not only persevere to improve their competence through self-evaluation at the end of a lesson or series of lessons (reflection on action) but also are constantly evaluating their practice during their teaching (reflecting in action)’ (Hayes, 2011, p. 120). In this activities the well-known definition of professional development can be recognized: ‘a process by which, alone and with others, teachers review, renew and extend their commitment as change agents to the moral purpose of teaching; and by which they acquire and develop critically the knowledge, skills and emotional intelligence essential to good professional thinking, planning and practice with children, young people and colleagues throughout each phase of their teaching lives’ (Day, 1999, p.4).

Although the literature is quite clear about components and processes of teacher professional development (Robinson & Sebba, 2004; Kennedy, 2005), even today the concept of CPD in education is often ill-defined, with the separate notions of formal training and on-the-job learning serving to confuse the issue further (Rose & Reynolds, p. 219).

Beyond separation between formal training and on-the-job learning, consideration must be given to the lack of a common policy in Europe about teacher continuing professional development, at least until a few years ago. The complexities of the teaching profession require a lifelong learning perspective to adapt to fast changes and evolving constraints or needs, international studies on teachers and their professional development have shown (European Commission, 2007; OECD, 2005; Eurydice, 2009) that so far, in-service training is considered nevertheless as a professional duty in about a half of all European states, but it is in practice optional in many of them. Incentives to
encourage participation in CPD appear few, and penalties for no participation are rare (Caena, 2011).

Form, content and context conditions of teachers’ professional development were extensively described and analyzed (Vescio, Ross & Adams, 2008; Geijsel et al., 2009): it is generally focused on fostering educational performance and effectiveness, outlining key variables for effectiveness in teachers. The OECD’s TALIS survey however (Scheerens, 2010) pointed out that CPD activities appear to be relatively loosely linked with school practices in the areas of instruction, evaluation and feedback, and school leadership; this seems to recommend policies aimed at a stronger integration of different functional domains of schooling.

For this reason, in recent times many European states are taking a number of measures aimed at the solution of CDP questions through national planning and a common policy (Eurydice, 2015).

2. THE ITALIAN NATIONAL PLAN OF CDP TEACHERS TRAINING

Teacher professional development requires a complex set of competences Beijaard, Meijer, Morine-Dershimer, Harm 2005; Guibert, Troger, 2012): self-awareness, reflection in/on action, disciplinary skills (languages, epistemologies and core-curriculum of knowledge), pedagogical skills (promotion and mediation of the learning process), soft-skills (interpersonal, social and communicational abilities), methodological skills (design, evaluation, training documentation etc.), organizational and management skills (classroom management, support to the school management etc.). For this reasons teacher professional development requires different approaches and a complex model to teacher training.

The continuing professional development teacher’s training program requires different levels of intervention. According to Clarke & Hollingsworth (2002), it is expired at a conceptual framework that can be described as an ‘onion-rings’ model, going from the micro-level to the macro-level perspective – with individual teachers’ personal characteristics (competences, beliefs and attitudes) at the core, a second layer concerning teaching effectiveness in the classroom (instructional repertoires), a further layer about teachers’ cooperation in school contexts, and finally considering national policies and organizational features (including issues of autonomy, accountability, evaluation in education systems) as the outer layer.

In the last few years, the Italian National Plan of Teachers Training (Piano Nazionale di Formazione del docente - PNF) had to deal with continuing professional development providing a univocal governance model and standards of teachers training quality (v. law 107/2015).
First of all, PNF defines teachers CDP a ‘mandatory, permanent and structural’ action (art. 1, comma 124): not only a cultural update (art. 282, D.Lgs. n.297/1994) but a developmental ‘strategic lever’ for teacher him/her-self, school environment and whole national system. For this, PNF establishes a governance process that combines different actors and needs: Minister of Education, that draws up the three-years National Plan and states quality standards of teachers training; local educational offices, that collects and manages professional development needs of teachers; schools, that detect professional development needs of teachers in accordance with their own three-years planning (PTOF) and the annual plan of improvement (PdM); educational institutions (as University), that offers professional development programs in accordance with the national quality standards.

Subsequently, PNF establishes (DM 796/2016) the priorities about teachers CPD in terms of competences: a) systemic competences (teaching improvement, competence assessment, planning and evaluation, methodology innovation); b) 21st century competences (foreign languages, digital teaching and e-learning environment); c) inclusion competences (global citizen, inclusion and disability, disadvantage preventive measures).

In order to assure the training courses quality, PNF recommends to articulate each CPD course in Units of 25 hours that provides several activities as virtual/presence training, experimental teaching/action research, networking, self and group study, documentation aimed at school effectiveness checking, project-work.

At least, PNF enhance the role of research on teacher’s professional development and promotes action research programs that involve together teachers and researchers.

3. METHODOLOGY. THE DIDASCO PROJECT AT UNIVERSITY OF BARI

University of Bari has devised in 2016/17 DidaSco Project ‘School teaching services and teacher professional development’, a continuing professional development teachers’ training program.

DidaSco Project is carried out with regard to PNF: the course catalogue is linked to the PNF teacher’s training priorities; the structure of each course holds together theoretical knowledge, documentation and action research. But it is mainly based on an original organizing framework, inspired by collaborative approach that assumes the importance of a partnership between researchers and teachers (Biémar, Dejan & Donnay, 2008; Desgagné, 1997; Desgagné, Badnarz, Couture, Poirier, Lebuis, 2001; Perla, 2015)

DidaSco Project is based on a continued learning organizational model that considers school professional communities the most favorable environment for teachers’ professional learning and takes as reference the spiral process
model (Hammond, 2010) in which peer supports (school or course colleague, tutors), external supports (supervisors, school and teaching experts) and collaboration between them (Rose & Reynolds, 2007; McNeill, Butt, Armstrong, 2016) are connected in a cycle of spiral reflection (Darling-Hamond et al. 2009) – fig. 1.

Such perspective takes stock of past failures of CPD programs informed by a deficit-mastery model, consisting in ‘one-shot’ professional development approaches, adopting instead a ‘change as professional learning’ perspective, inspired by adult learning, situated cognition theories and cognitive continuum theory (Hammond et al., 1986), according to the paradigm of the teacher as reflective practitioner, taking responsibility for learning to improve the quality of professional performance (Sleegers, Bolhuis & Gejsel, 2005; Dam & Blom, 2006).

More specifically, DidaSco Project sets the ‘spiral’ pedagogical model in a multi-level (national, regional and local) governance system. DidaSco Project offers more than 100 courses in accordance (compliant) to PNF competences priorities. Each school evaluates the adequacy of one or more courses according to school improvement plan (systems evaluation, teaching methodology innovation - flipped classroom, CLIL, inquiry based learning, digital teaching etc. - strategies for inclusions). DidaSco Project carries on fulfillment of course in respect of PNF teacher training courses quality. Trainee teachers make a continuous return path from theoretical models to practical situation, through action research procedures, supported by colleagues and under the guidance of school and university experts.
Each course is divided into two units of 25 hours: 8 hours of lectures, 8 hours of networking/teamwork, 9 hours of research/documentation and 25 hours of individual study.

![Diagram of the DidaSco Project model]

Figure 2: The ‘DidaSco Project’ model

4. FUTURE RESULTS. THE ANALYSIS OF ‘PROTOTYPES’

At this stage, it is only possible to describe the pedagogical and organizational model of CPD programs behind the DidaSco Project. A useful way to better understand the connection between theory and practical components of CPD programs would be to study in-depth the ‘connection points’, the ‘nerve centers’ of this connection. In DidaSco Project, it would be the analysis of ‘prototypes’ (v. fig. 2). Considering the whole process of the project and specifically the connection between theoretical learning and practical experiences, the ‘prototype’ is the distinguishing feature of DidaSco Project.

Prototype is the operational device (as project-work, lesson plan, program of intervention etc.) that each trainee teacher - alone or in group - has to design during the theoretical course and implement into real school context.

I.e., in a course on teaching digital competences the issue of ‘Technological Pedagogical Content Knowledge’ (TPCK - Harris, Mishra, & Koehler, 2009) has been tackled. The trainee teacher had to design a lesson plan in reference to the TPACK model and to try to use this lesson plan (‘prototype’) in a school context.
THE DIDA Sco PROJECT: A TRAINING PROGRAM FOR THE
TEACHERS’ PROFESSIONAL DEVELOPMENT

‘Prototype’ can be considered, at the same time, as a result of theoretical and methodological learning and an 'in progress' proof of abilities and skills that teacher is building.

On a further layer of system, through the analysis of ‘prototype’ it is possible both:

a) to achieve the trainee teacher's skills, because the device allows skills to be stressed in a practical school environment;

b) to verify the ‘prototype’ itself effectiveness, since school could check the use of device and decide to adopt it according to improvement actions.

In other words, the ‘prototype’ can be considered, whether from a representational or a material point of views (Eiliam, 2014), the joining and recursive link between university and school, between theoretical and methodological knowledge and experienced understandings.

The analysis of ‘prototype’ could be included in specific teachers education inquiry and, within the collaborative perspective (Day, 2011; Perla, 2015), allows the explication of teaching knowledge (Shulman, 1986; Damiano, 2007; Perla, 2011).

5. CONCLUSIONS

Continuing professional development (CPD), as in-service training, has been identified by the European Commission as a key strategy to improve the performance of education and training systems in all countries (Eurydice, 2015).

As the rest of Europe, political decisions seemed to be going in the direction of:

- unification of processes, with providing a univocal governance model;
- identification of quality standards, not only about teaching itself but also teacher continuing professional development training courses.

Italian National Plan of Teachers Training (Piano Nazionale di Formazione del docente – PNF, law 107/2015) brought a new vision about teacher continuing professional development (CPD).

DidaSco Project model provides an initial response to this new vision and it could be a possible solution to the CPD questions. The organizational framework, pedagogical model of it, moreover, the representational and operational device (as ‘prototype’), will be examined within a three-years research program - A.A. 2017/20, just started at University of Bari.
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THE DIDASCO PROJECT: A TRAINING PROGRAM FOR THE
TEACHERS’ PROFESSIONAL DEVELOPMENT


How and why classroom discourse can enhance students learning and achievement

Pedro Z. Caldeira¹, and Ana Paula Bossler²

¹Universidade Federal do Triângulo Mineiro
pedrozanycaldeira@gmail.com
²Universidade Federal do Triângulo Mineiro
paula.bossler@gmail.com

ABSTRACT
This paper presents and compares two discourse models applied to classroom verbal interactions: The Variation Theory, or the application of the classroom discourse to the space of learning, and the Model of the Elements of the Analysis of Discourse.

The analysis of both models with the help of real classroom teacher speech shows the complementary of both models and the need to develop an integrative Revised Model of Classroom Discourse, with a special emphasis on the use of pathetic elements to enhance students’ interest and motivation, and readiness for learning. This paper also discusses the role of questions in the instructional process, specially open-ended and false close questions, to produce patterns of variation and invariation of critical dimensions of the object of learning with positive impacts on learning and to promote metacognition, aiming at learning and knowledge (re)construction. This integrative model stresses teachers’ discourse responsibility regarding students learning and achievement.

KEYWORDS: discourse analysis, space of learning, discourse responsibility, metacognition.

1. INTRODUCTION
Classroom discourse can be analyzed at three different levels: the micro level; the meso level and the macro level. The micro level models of discourse are typical of the linguistic analysis of teachers’ and students’ speech inside the classroom (for instance, the three-part sequence models of Teacher Initiation, Student Response and Teacher Evaluation/Feedback – IRE/IRF – (Cazden, 2001). The meso level models aim to analyze teachers’ utterances based on an instructional model or on sound research results (Kullberg, Runesson, Marton et al., 2016; Marton, 2015; Marton, Runesson & Tsui, 2004). The macro level models analyse how different discourse elements that create the discourse mise-en-scène (Discourse mise-en-scène includes both the implicit and explicit story underlying speech production and the speech circumstances - location,
identities, relationships of intentionality and exchange physical conditions). (Charaudeau, 2000) have an impact on impact the instructional setting, promoting students’ learning and achievement (Bossler & Caldeira, 2015). This paper analyzes real teacher classroom utterances in the light of the Variation Theory of Learning (VT – Kullberg et al., 2016; Marton, 2015) and of the Model of the Elements of the Analysis of Discourse (MEAD – Bossler & Caldeira, 2015).

2. THEORETICAL FRAMEWORK

There is one common ground for the classroom discourse models here analyzed: the Symbolic Interactionism (Blumer, 1969), which states that knowledge and meanings reside not in objective dimensions of speech production but that they are rather negotiated by individuals through their interactions with one another (Charaudeau, 2000; Moje, 1995).

2.1. The Variation Theory

VT (Lo & Marton, 2012; Marton, 2015) try to show necessary conditions for learning, e.g. to promote learning in an effective way. Subjects learn when they acquire knowledge of “something” (Marton et al, 2004, p. 4) and that something is the object of learning: that goes from learning to read or to perform simple arithmetic operations, to understanding the intricacies of nuclear Physics.

The necessary conditions for learning are (Lo & Marton, 2012; Marton, 2015): learning should focus on the object of learning, learners must recognize different dimensions and values of the objects of learning and that learning two or more things simultaneously is more effective than learning one thing at a time, as recently argued by Kullberg et al. (2016).

For instance, learning how to read and write numbers involves, first, to apprehend the difference between letters and numbers, second, to differentiate between the different digits (from 0 to 9) and, third, to place the numbers in an orderly manner. The concept of “number” cannot exist without the concept of “letter”. The dimension of readable and writable graphic units has two values: “letters” and “numbers”. The awareness of the difference between these two types of graphic units is called contrast (Lo & Marton, 2012).

The concept of “1” cannot exist without the concept of “2”. The contrast between “1” and “2” allows the learner to differentiate between 1 or 2 units of something: bears, glasses, scissors, boys, girls, children. One bear, one glass, one scissor represents (in digits or images) one unit of bear, of glass, of scissor, respectively. Two boys, two girls, two children represent (in digits or images) two units of boy, of girl, of child. The awareness of the sameness of “1” in different contexts is called generalization (Lo & Marton, 2012) and, as
regarding instruction, generalization follows contrast. Thus, “numbers” have critical features that differentiate them from “letters” (counting vs. reading purposes, for instance), and “1” have critical features that differentiate it from “2” (shape, or how many units each one represents).

One bear, [1, 2, 3…], or 1 + 1 share the same meaning linked to “1”: 1 bear, 1 as the first number in an order, and 1 as an element of an arithmetic operation. The awareness the uses of “1” across different situations is called fusion. As instruction is concerned, fusion follows generalization, as it is “seeing all the critical aspects in relation to each other and to the whole” (Marton, 2009, in Lo & Marton, 2012, p. 12).

2.2. Model of the Elements of the Analysis of Discourse

MEAD tries to understand how the macro level elements of the classroom discourse have an impact on students’ interest and readiness to learn: the communication contract set-up; the voices present in the speech or; the pathetic effects included in the speech Bossler & Caldeira, 2015).

When a teacher starts the lesson about sharks and other dangerous sea animals saying *Today we are going to have the most frightening lesson of our lives!* she is establishing a communication contract (today the lesson will be different and more interesting than usual). And she says it using an entertainer’s voice and a word with great pathetic effect (*frightening*).

The teacher’s classroom discourse, even when she is presenting school content, is dialogic. The teacher always bears in mind their students and the need to be comprehended, so she must carefully choose the words used to refer everyday events or to present school content; the pace of the explanation; or the complexity level of the explanation. In doing so, the teacher can use different voices: for instance, the traditional teacher, the different teacher, the funny teacher, the teacher that anticipates students’ difficulties, the entertainer, the scientist or the parent. For instance, the teacher uses the voice of the traditional teacher when she explains the water cycle in a linear and thorough way. Conversely, when the teacher counsels their students to drink a lot of water in the summer or to be warm in the winter, she uses the voice of the parent.

Pathetic clues or markers are the emotion associated with words and sentences (Bauer, 2000; Charauadeau, 2000). In a class about sea fishes and mammals, the teacher is supposed to present information regarding fishes in general and sea mammals, especially whales and dolphins. However, promising the most frightening lesson of their lives is associated with strong expectations aiming to arouse students’ interest and readiness to learn.

Bakhtin (1986, 1992) identifies the utterance as ‘an emerging island’ of speech and this island has its contours dependent on the situation of enunciation and
on the audience (the students, in educational settings). For the author, the utterance is endowed with a significance that is not glued to the word nor to the soul of the teacher or the student. The significance arises as a product of the teacher and student interaction, that is, the meaning is negotiated between the two of them. Therefore, words do not only have an intrinsic and objective value, the receptor extracts from the words the intention of the discourse. The teacher’s classroom discourse is generally content-related, as usually analyzed at the micro and meso levels. But, sometimes, teacher’s utterances are not content-related or have an implicit meaning underneath the explicit one: a lesson on sustainability can be disguised as a lesson on electricity. So, when the teacher, on a lesson about Ecological disasters, says *The Earth is at risk, and this time we are the meteor...* the intended meaning students extract can be *Change your behavior!*

The last two elements of MEAD, the types of discourse organization and the discourse complexity overlap must entirely with the necessary conditions for learning as stated by the VT.:

A discourse can be organized as narration, description or argumentation. Argumentation has a more positive impact on learning than narration or description (Villani & Nascimento, 2003). The implicit goal of VT regarding the classroom discourse is argumentation (Marton, 2015).

A discourse can be linear or complex (non-linear). Non-linear discourses can exert a more positive impact on learning than linear discourses (Bossler, 2004). With the need to develop situations to contrast, generalize and fuse different dimensions and values of the object of learning, VT proposes the use of a rather complex discourse structure.

3. METHODOLOGY

The use of the above models for discourse analysis of teachers’ classroom utterances unveils comparative flaws and strengths. While one model allows for a meso-level classroom utterances analysis, the other aims to analyse classroom utterances at a macro level.

The questions here are: i) ‘how can teachers design their classroom discourse to promote deeper students’ learning processes?’ and ‘are there more points of concern in the teachers’ classroom discourse than to the attention to content-related verbal productions?’.

Teachers have two strong responsibilities: an instructional responsibility (Hansson, 2010; Marton, 2015) as they should exert a leading role in the classroom work to promote more and better student learning and a discourse responsibility. It is through discourse, namely asking questions, that teachers
can draw and hold students’ attention and interest and simultaneously design patterns of variation and invariation regarding the objects of learning.

4. RESULTS
At the end of one lesson, a young teacher says to their blind students (Bossler & Caldeira, 2015):  
*Next lesson I’ll make it rain inside the classroom.*
How VT deals with this type of utterance? It does not. That is why the need for a different classroom discourse model to deal with utterances not directly related to objects of learning, but capable of exerting a positive impact on students’ interest and motivation regarding school content. More, the discourse model needs to accommodate and understand utterances exchanged between teachers and students, inside and outside the classroom. Returning to the example:  
*Next lesson I’ll make it rain inside the classroom* – says the teacher to their blind students. In the following days, each time she comes across her students in the school hallways she stresses *Don’t forget the rain inside the classroom next week!* or *Don’t forget the raincoat!*
Students where so interested to experience the rain inside the classroom that, in the following week, they arrived way before the classroom schedule (and she did it: it was a simple condensation experiment). The teacher set up a communication contract with their students: the following class it will be a different one, much more interesting than the usual ones (Charaudeau, 2000). Keeping her promise and making it rain inside the classroom *de facto* had a strong pathetic effect that lasted long after the class. A concept like “raining inside the classroom” can exert a pathetic effect, as getting wet inside the classroom must be an odd experience (*What a thrill!* – students might think). Getting wet serves as a premise to the discourse organization of the next lesson.
At the same time, this utterance shows the voice of a different teacher. The teacher that systematically teases her students about the next class shows the voice of the funny teacher.
When the teacher says *Next week, I’ll make it rain inside the classroom* what is the meaning extracted by her students? *Next class we’re going to have much fun!* – some students might think, or *She’s really crazy, wanting all of us to get wet!* – other ones could think.
The meaning given by the students to an enunciation would confirm that a pathetic trace would develop and turn into a pathetic marker, as in our example.

4.1. Asking questions: put the classroom discourse models on motion
Asking questions is a strong way to put students in the track of learning and is the main speech production teachers can use to promote students’ learning. There are mainly four types of questions: closed, false closed, open-ended, and false open-ended questions.

A closed question results in a Yes or No answer or similar, *Can the chameleon change its colour?* for instance. This is a closed question that does not demand the students to open other dimensions of variation (Marton, 2015) or, putting in other words, do not demand metacognition from students.

As another example, the question, *Can you mention an animal that can change its colour?* introduces a dimension of variation (animals). “You only need to pick a value in that dimension (i.e. one animal that changes color)” (Marton, 2015, p. 89), again not demanding metacognition by students.

However, when the teacher points to a particular area of the bean just drawn by the student and asks *Is there anything missing here?,* surely she does not want a Yes or No answer. This is a false closed question, as the teacher want her students to name the missing structure and to understand its function in the bean germination process (Caldeira & Bossler, 2015). The variation of dimensions here are bean structure and bean structure functions. This type of question generates students’ metacognition processes needed to knowledge (re)construction (Caldeira & Bossler, 2015).

As for an open-ended question, returning to the chameleon example, if the teacher asks *Why does the chameleon change its colour?,* the students would need to open a dimension of variation, for instance, “mechanisms for survival.” (Marton, 2015, p. 89).

Finally, there are false open-ended questions, the type of question that are apparently open-ended but they are actually closed questions. For instance, when the teacher asks *So, what have we learn with the movie?* right after their students had seen it, students will comment only the parts of the movie related to school content. The question is much like a closed one and at most opens only a dimension of variation staying the rest invariant.

5. IMPLICATIONS/DISCUSSION

As shown in the last section, vt and mead are not rival models of classroom discourse but they complement each other. Vt tries to present, with a hands-on approach, the necessary conditions for learning, namely focusing on the object of learning and identifying patterns of variation and invariation related to the objects of learning, aiming at students’ learning, whereas mead is an attempt to understand and describe the main discourse analysis elements that impact on students’ interest and learning readiness.
VT attempts to understand and describe the necessary conditions of learning and MEAD tries to understand and describe the discourse *mise-en-scène* more suitable for triggering learners’ interest and consequently learning. Therefore, while MEAD focus on the discourse elements that prompts learners’ curiosity (namely the communication contract, pathetic clues and markers and voices present in the discourse), VT goes into a greater level of detail about what relates to instruction as a model for testing patterns of variation and invariation regarding critical dimensions of the objects of learning, allowing, for instance, one to better understand discourse elements as discourse linearity and discourse types. Thus, VT lets to realize why: i. The argumentative type of discourse organization promotes more learning than the descriptive and narrative types, and; ii. Complex discourse structures provide deeper learning than linear ones.

However, VT does not even try to understand and explain numerous classroom utterances, namely the ones not regarding explicitly and directly to an object of learning, whereas the MEAD provides good explanations and give good suggestions for those types of utterances. For instance, the communication contract is completely absented in the VT model, whereas is central to MEAD.

6. CONCLUSION
Concluding, we propose a Revised Model of the Elements of Classroom Discourse with the following elements:

- communication contract – the promises the teacher makes to their students (explicit in MEAD and non-explored in the VT model). We need to bear in mind that every discourse has a communication contract, either explicit or implicit, and the instruction can be boosted if the teacher pacts a communication contract with their students that is consistent with their discourse intentions and the learning objectives they set for their students;
- pathetic clues and markers – a way to add emotion to the classroom discourse and therefore catch the students’ attention and interest;
- voices in the discourse – when teachers understand that they use or they can use different voices inside the classroom (for instance, the traditional teacher voice, the funny teacher voice, the parent voice or the scientist voice), they are better able to promote a dialogic class (O’Connor & Michaels, 2007), a class were the teacher anticipates students learning difficulties and she can ask different questions related to different features of the object of learning;
- discourse intention/focus – it helps the teacher to differentiate the object of the main and the accessory features of the object of learning and to better understand the type of questions they should ask to students considering the object and the goal of learning, and;
- patterns of variation and invariation regarding the object of learning- the path of learning (repetition-contrast-generalization-fusion) that is materialized in the learning objectives defined for the object of learning and that must shape the teacher's classroom discourse, in view of these same learning objectives.

REFERENCES


HOW AND WHY CLASSROOM DISCOURSE CAN ENHANCE STUDENTS LEARNING AND ACHIEVEMENT


What evaluates teachers in training and teacher in exercise of primary education about human nutrition?

Juan Carlos Rivadulla-López¹, María-Jesús Fuentes-Silveira², and Cristina Martínez Losada³

¹Universidade da Coruña  
juan.rivadulla@udc.es  
²Universidade da Coruña  
m.j.fuentes@udc.es  
³Universidade da Coruña  
cmarl@udc.es

ABSTRACT
The curricular conceptions of the teachers are related to the decisions that they make about what / how to teach / evaluate, being the evaluation a didactic aspect of great influence on students and teachers that allows to evidence the curricular aspects to which the teacher attaches greater importance. For this reason, we proposed to investigate with 10 teachers in Primary Education and 29 small groups of teachers in Primary Education, the key ideas that include the evaluation questions that they propose about human nutrition for 5th / 6th grade Primary. In order to collect data, the teachers in practice were asked to facilitate the evaluation questions they pose in the exams, while the new ones used the activities they carry out during their formative period. In order to analyze the proposed issues, four dimensions were defined (concept / purpose of nutrition, systems that intervene, food and health, nutrition / food and environment) and within each of them different key ideas were identified. The results show that there are differences between in-service teachers and in-service teachers, with professionals being more classic than novices, since it is an innovation that teachers in training attend to the environmental dimension of nutrition. This is a wake-up call for the training systems that are being used, including lifelong learning.

KEYWORDS: Primary Education, teachers, human nutrition, assessment.

1. INTRODUCTION
Although the study of teachers' conceptions has a tradition of more than three decades, there are still ongoing studies on this subject which ratify the need to continue researching teacher education and professional practice (Ruiz, Márquez, & Tamayo, 2014). It is known that teachers have ideas about science and science teaching and learning, which are the product of their years of schooling, during which time they assume or reject principles and procedures of their own teachers (Cañal, Travé, & Pozuelos, 2011). That is, during the
period in which they were students, a notable influence was exerted, since they acquired knowledge and beliefs in a non-reflexive way, as something natural, obvious, "common sense". These knowledge and beliefs that teachers have directly influence the decisions they make regarding the selection of content, activities, modes of evaluation, etc. (Pontes, Poyato, & Oliva, 2016). In this way, teachers, when teaching, favor didactic approaches very similar to those they preferred as students, and often teach in the same way as they were taught. In addition, many of these knowledge and beliefs are often kept hidden, without the emergence of conscious thinking, which is a disadvantage in their professional development (Santos & Duarte, 2002). On the other hand, it would be good to emphasize the importance of teacher training, because if teachers do not have the adequate preparation to dictate these contents and even more, if they are not explicitly contemplated in the school curriculum, there is no guilt or responsibility whatsoever for not teaching them.

As for the subject of study with which we work is that of "human nutrition", which has a high educational value, which goes beyond anatomical and physiological aspects as it also covers food, diet, relationship with the environment, etc. From the educational point of view, this topic is included as an object of repeated learning throughout compulsory education, and its study is plated progressively, that is to say, with a level of increasing depth (Rivadulla López, García Barros, & Martínez Losada, 2012). However, their teaching / learning involve numerous problems. In fact many studies indicate that the students usually show some doubts about the human nutrition in general, the systems that take part in the same, to the feeding, etc. (Banet & López, 2010).

As discussed above, teachers have to make informed and thoughtful decisions about the contents to be taught in the classroom, which is not always an easy task. Thus, this paper aims to achieve the following objectives:

- To know what aspects related to human nutrition are addressed by teachers in training and in exercise in their evaluation questions.
- Compare the contents of both groups.

2. METHODOLOGY.

In this research, 10 teachers participated in the exercise of 5th / 6th grade Primary Education in different schools in the north-west of Spain and 29 small groups of teachers in training (2-3 people in each group) of the 3rd year of Primary Education of the Faculty of Educational Sciences of the University of Coruña.

The collection of information focused on the content that teachers in service evaluate or the content that teachers in training would evaluate. Therefore, the teachers in practice were asked to contribute the evaluation questions that they
use with their students in the exams. Training teachers were asked to develop assessment activities for hypothetical students in relation to human nutrition. For the analysis of teachers' contributions, a dossier has been elaborated that contemplates a gradual opening to a wide conceptual diversification from minor to major concretion. Table 1 presents the dossier that includes four large dimensions (N. Concept and purpose of nutrition, S. Systems involved in nutrition, F. Relationship between food and health, E. Relationship between food / nutrition and environment) and within each of them key ideas were established.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Key ideas</th>
</tr>
</thead>
<tbody>
<tr>
<td>N: Nutrition</td>
<td>N1: Nutrition helps us to walk, run ...</td>
</tr>
<tr>
<td></td>
<td>N2: In terms of nutrition are involved organs / systems (without naming the obtaining of energy)</td>
</tr>
<tr>
<td></td>
<td>N3: Energy is obtained through the transformation of nutrients</td>
</tr>
<tr>
<td></td>
<td>N4: The energy is obtained in the cells</td>
</tr>
<tr>
<td>S: Systems¹</td>
<td>DS1: The digestive system (SD) consists of mouth, pharynx ...</td>
</tr>
<tr>
<td></td>
<td>DS2: In the SD, the digestion of food (becoming nutrients) and waste that is eliminated by the feces occurs.</td>
</tr>
<tr>
<td></td>
<td>DS3: Nutrients contribute to obtaining matter and energy</td>
</tr>
<tr>
<td></td>
<td>DS4: The digested substances cross the intestinal walls and pass to the blood to be used by the organism in all parts of the body</td>
</tr>
<tr>
<td>F: Food</td>
<td>A1: A good varied diet helps us to stay healthy</td>
</tr>
<tr>
<td></td>
<td>A2: A varied diet is healthy because it provides different types of nutrients that our body needs</td>
</tr>
<tr>
<td></td>
<td>A3: A healthy diet, in addition to a balanced diet, involves controlling hygiene, respecting meal times, doing physical exercise</td>
</tr>
<tr>
<td>E: Relationship with environment</td>
<td>OE1: Obtaining substances modifies the environment</td>
</tr>
<tr>
<td></td>
<td>OE2: Obtaining substances modifies the environment and requires awareness and social action</td>
</tr>
<tr>
<td></td>
<td>EE2: Elimination substances modifies the environment and requires awareness and social action</td>
</tr>
</tbody>
</table>

Table 1: Key ideas established based on teachers responses (Sample example the digestive system)

3. RESULTS.
Both groups of teachers raise evaluation questions about the concept / purpose of nutrition (N), the systems involved in human nutrition (S) and food and health (A) (figure 1). Training teachers also provide questions on the relationship between food / nutrition and the environment, however, no in-service teacher provides questions on this aspect.
All practicing teachers who contribute assessment questions related to the concept / purpose of nutrition (Table 2), raise questions related to the key idea N1, while only 42.3% of teaching staff ask questions on this topic. The questions of the 66.7% of teachers in exercise and those of the 80.8% of teachers in formation deal with the idea N2. In addition, 50% of teachers in training also proposes evaluation questions on the idea N3, subject hardly requested by the teachers in service.

<table>
<thead>
<tr>
<th>Key ideas</th>
<th>In service (N=6)</th>
<th>In training (N=26)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1. Function associated with feeding</td>
<td>6 (100%)</td>
<td>11 (42.3%)</td>
</tr>
<tr>
<td>N2. Function associated with organ / system intervention</td>
<td>4 (66.7%)</td>
<td>21 (80.8%)</td>
</tr>
<tr>
<td>N3. Function at organism level</td>
<td>1</td>
<td>13 (50%)</td>
</tr>
<tr>
<td>N4. Function at the cellular level</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 2: Comparison between teachers in service and teachers in training who include in the evaluation questions different key ideas about the concept / purpose of nutrition.
Table 3 presents the comparison between teachers in service and teachers in training who raise issues related to the systems involved in human nutrition.

- Regarding the digestive system, more than 70% of practicing and training teachers propose issues centered on the anatomy of the system (DS1). 60% of teachers in training and 80% in training in the function of the system (DS2). In addition, 35.7% of teachers in training also refer to the relationship between systems (DS4).

- Regarding the respiratory system, the two groups provide questions related to anatomical aspects (RS1), but also raise questions about the function of the system (RS2).

- With respect to the circulatory system, once again the majority of practicing and in-service teachers contribute issues associated with anatomical aspects (CS1) and only 20% of in-service teaching staff and 37.5% of teaching staff proposes questions related to the function of the system (CS2).

- In relation to the excretory system, there are more differences between groups. Thus, 50% of the professors in practice propose questions associated with anatomical aspects (ES1), while the professors in training contribute issues associated with both these aspects (57.1%) and those related to The function of the system (ES2) (71.4%).

- It is noteworthy that the evaluation questions of both groups only include relationships between systems (DS4 / RS4 / CS4 / ES4), as they are only reflected in the digestive system (DS4).

<table>
<thead>
<tr>
<th>Key ideas</th>
<th>In service (N=10)</th>
<th>In training (N=14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>70%</td>
<td>71.4%</td>
</tr>
<tr>
<td>DS2</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>DS3</td>
<td>--</td>
<td>1</td>
</tr>
<tr>
<td>DS4</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Digestive system. SD1: Anatomy; SD2.1: Global function; SD2. Function of the system; SD3: Function in relation to human nutrition; SD4. Relationship between the digestive system and the circulatory system.

<table>
<thead>
<tr>
<th>Key ideas</th>
<th>In service (N=10)</th>
<th>In training (N=6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>50%</td>
<td>83.3%</td>
</tr>
<tr>
<td>RS2</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>40%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Respiratory system. SR1: Anatomy; SR2: System function.
Table 3: Comparison between teachers in service and teachers in training who include in the evaluation questions different key ideas about the systems involved in nutrition.

<table>
<thead>
<tr>
<th>Key ideas</th>
<th>In service (N=10)</th>
<th>In training (N=8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS1</td>
<td>5 (50%)</td>
<td>6 (75%)</td>
</tr>
<tr>
<td>CS2</td>
<td>2 (20%)</td>
<td>3 (37.5%)</td>
</tr>
</tbody>
</table>

Circulatory system. SC1: Anatomy; SC2: System function.

Excretory system. SE1: Anatomy; SE2: Global function; SE2: Function of the system.

Table 4 shows the contributions of in-service teachers and in-service teachers proposing questions on food and health. More than 75% of the teachers of both groups contribute assessment questions that refer to the characteristics of healthy eating (A2).

Table 4: Comparison between teachers in service and teachers in training who include in the evaluation questions different key ideas on food and health.

<table>
<thead>
<tr>
<th>Key ideas</th>
<th>In service (N=7)</th>
<th>In training (N=21)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1. Varied food and health</td>
<td>--</td>
<td>3</td>
</tr>
<tr>
<td>F2. Characteristics of healthy eating</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>85.7%</td>
<td>76.2%</td>
</tr>
<tr>
<td>F3. Healthy habits</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

Lastly, no in-service teacher contributes questions about food / nutrition dimension and medium so it is not possible to establish comparisons between the two groups. It should be noted, however, that 12 of the 13 trainees who are proposing evaluation questions on this dimension, 12 are concerned about the procurement of substances (focusing on the OE1 idea on environmental impact through the procurement of substances). And 7 future teachers refer to the elimination of substances (focusing both on the idea EM1 on the impact on the environment due to the elimination and on the idea EE2 highlighting the need for awareness and social action).

4. CONCLUSIONS
The results of the study show that there are differences between in-service teachers and teachers in training. Future teachers direct their evaluation questions to contents corresponding to the four dimensions, especially to the concept / purpose of nutrition and to health food. On the contrary, professionals exclude the content associated with the relationship between...
nutrition / nutrition and the environment and insist on the systems that intervene in nutrition.

These different positions on the evaluation of contents, makes the professionals are more classics than the new ones, since it supposes an innovation that the novices attend to the environmental dimension of the nutrition.

In comparative terms, there is a great deal of similarity between the two groups in terms of the concrete contents that are presented in relation to the dimensions they consider. Teachers prioritize the anatomy / function of the systems and the characteristics of healthy eating. However, there are differences in the concept / purpose of nutrition, with the questions of teachers being in practice proportionally more generic. While we consider it positive that participants teach all systems involved in human nutrition and that they also refer to the characteristics of healthy eating, they should also consider the relationship between systems and nutrition and between nutrition and food.

Therefore, to be able to propose an evaluation with appropriate content for the students, we must develop a quality teaching. This requires adequate criteria for selecting and sequencing teaching contents. This is where teachers have difficulties (Banet & López, 2010), as they have a restricted idea in some of the contents that must be taught about human nutrition in Primary Education (Rivadulla López, et al., 2012). This is a wake-up call for initial and ongoing teacher training.

5. IMPLICATIONS.

The work done has its limitations, since the number of participants is not equitable between an in-service and in-service teacher. However, it has allowed us to identify differences and similarities between the two groups in terms of aspects that evaluate human nutrition. It is evident that current knowledge about human nutrition provides students with useful formative contents to know the human body and its functioning, but there are a number of educational deficiencies that can be improved through teacher training. Therefore, through this work we suggest a series of proposals for improvement for teacher education and that respond to the need to develop appropriate criteria to select contents to teach about human nutrition within the framework of school science. First, it is necessary for the teaching of human nutrition to attend to the holistic view of the process so that teachers have an integrated view of the nutrition function, giving meaning to the specific functions of each of the systems involved in Human nutrition. It is also important to pay attention to the development of the concept of living being as the one that interacts and depends on the environment by modifying
it, thus giving relevance to the fact that the human being is a agent of change of the first order. On the other hand, the broader dimension of well-being in relation to sustainable development must be addressed, relating it to the maintenance of the environment and resources and, of course, to social welfare, which can’t be achieved without the indispensable social justice Guarantee a fair and equitable distribution of food in the world.

We also consider important the need to offer a training program that promotes the modification of teachers' ideas about what and how to teach and evaluate. In order to do this, the scientific and didactic ideas of the teachers should be taken into account in both initial and continuing education, constituting the first step in order to produce changes in the concepts, procedures and attitudes related to the teaching of Science. In addition, the teachers should be taught taking into account the previous ideas of the students of Primary Education. That is, to know and discuss the ideas that students have about human nutrition, to know how they can find them and what they can serve in their teaching. Finally, it is important to establish a greater relationship between what they know or think and what they do in the classroom. This fact must be taken into account both with teachers in training, when they carry out the practices in the centers, and with the teachers in exercise, promoting the reflection from and on the teaching practice that they play in their classroom.

AKNOWLEDGMENTS
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REFERENCES


The Development of Beginning Chemistry Teachers’ Understandings of and Ability to Translate the Nature of Science Within a PCK-Based NOS Program

Surayot Supprakob¹, Chatree Faikhamta², and Potjanart Suwanruji³

¹Faculty of Education, Kasetsart University
kimjihoon_tomoko@hotmail.com
²Faculty of Education, Kasetsart University
Chatreechem@yahoo.com
³Faculty of Science, Kasetsart University
fscipjs@ku.ac.th

ABSTRACT
Even there are some success in developing teachers’ understandings of and abilities to teach NOS, teachers’ translating of NOS in actual classroom practices has been still the one of challenging issues in science education. This study sought to develop four teachers’ understandings and ability to translate NOS in chemistry teaching in schools. The qualitative case study under interpretive paradigm was employed as a research methodology. Data were collected through multiple resources including pre- and post-modified VNOS-C questionnaire, classroom observations, field notes, teachers’ interviews and teachers’ artifacts of teachers. NOS understandings were categorized as informed, partially informed and naïve views while other qualitative data were used inductive process to seek out the pattern of how teachers were enhanced and how they implemented their instructions. The findings revealed that at the prior of engaging in PCK-based NOS program, all teachers mostly possessed informed views of NOS in each aspect except the aspects of the empirical evidences, and scientific theories and laws. NOS was hardly integrated nor obviously reflected in their teaching. By engaging this program, teachers gradually developed understandings of NOS to more informed views and ability to translate NOS in various levels. Even all of the teachers encountered with many difficulties while they were implementing NOS in practices, the level of translating NOS in classroom practices had been gradually changing compared to previous teaching. The implication for designing professional development program and of NOS based PCK framework are discussed.

KEYWORDS: Beginning chemistry teachers, Pedagogical content knowledge, Nature of science.
1. INTRODUCTION
Understanding of and ability to translate nature of science (NOS) has been an expectation in science teacher education standard and documents (NGSS, 2013; NSTA, 2006). Due to the inadequate views and the lack of NOS experience, teachers did not successfully integrate NOS in teaching practices. These are highly affected to their views and teaching in classroom (Dogan, Cakiroglu, Bilican, & Cavus, 2013; Sarieddine & BouJaoude, 2014).
To meet the expectation, pedagogical content knowledge for teaching the nature of science (PCK for NOS) has been purposed to help teachers enable translate NOS in classroom by Abd-El-Khalick & Lederman (2000). PCK for NOS was elaborated and employed as a framework to enhance teaching NOS by many researchers (Hanuscin et al., 2011; Faikhamta, 2013; Demirdöğen et al., 2015). They developed the course based PCK for NOS to enhance teachers, however, the investigation in actual classroom is limited. Therefore, the purpose of this study was to employ the PCK for NOS as a framework to develop understandings of and abilities to translate NOS in real classroom. In addition, the professional development program for enhancing beginning teachers and teachers in early year of teaching profession career are to be crucial to allow they adapt the theory into practice. As Luft (2007) call for researches that focus on beginning teachers or teachers in the first few year is needed to help science teacher educator understand more about their context and suitable design the continuous development for them. In addition, the specific program for bridging the connection between pre-service and induction program should be delineated. The specific research questions were; What is the impact of a PCK for NOS course on teachers’ understanding of NOS, and abilities to translate NOS in real classroom?

2. THEORETICAL FRAMEWORK
2.1. Nature of Science (NOS)
NOS has been become a central goal of science education across the world (Lederman & Lederman, 2014). NOS refers to a way of knowing, value and beliefs about the development of scientific knowledge (Lederman, 1992). To achieve, teaching NOS is considered to the one target to driven student to be a scientific literate person. NOS is always emphasized in many science curriculums in many countries (Lederman & Lederman, 2014). Therefore, science teaching integrated with NOS has become a fundamental basis of science teachers’ teaching practice. In this study NOS aspect was adopted and adapted from synthesizing of research articles and was grouped into three main aspects as AAAS. (1993) purposed.
2.2. Pedagogical Content Knowledge for Teaching the Nature of Science (PCK for NOS)
PCK and NOS is emerged to help teacher effectively teach NOS in specific topic Abd-El-Khalick and Lederman (2000). The effective NOS teachers should have adequate NOS knowledge and adequate pedagogical knowledge. Schwartz and Lederman (2002) argues that PCK for NOS is blended from NOS knowledge, subject matter knowledge and knowledge of pedagogy. Faikhamta (2013) concurs with Hanuscin et al., (2011) that PCK for NOS is analogous a PCK model for other topics, for instance, knowledge of instructional strategies to present NOS aspect which could be illustrated particular aspect of NOS and analogous could help students to understand NOS. The activities are also based on the context of scientific inquiry. This study was framed by Hanuscin et al. (2011) and Faikhamta (2013).

3. METHODOLOGY.
In this study, multi-case studies under interpretive paradigm was employed to build an understanding of how beginning chemistry teachers develop their PCK for NOS (Bogdan and Biklen, 2003).

3.1. Participant
Four teachers (Nana, Paula, Giftsy, and Rainy; Pseudonym) consented to enroll this intensive program. All held degree in teaching science (Chemistry) ranged from 0 to 5 years.

3.2. Data collection and analysis
Data were collected through multiple resources including pre- and post-modified VNOS-C questionnaire (Lederman et al., 2002), classroom observations, field notes, teachers’ interviews and teachers’ artifacts of teachers. Inductive process was used to analyze.

3.3. Description of Program
Base on the first phase (see supprakob et al, 2016), the activities in program were based on PCK for NOS framework (Hanuscin et al, 2011, Faikhamta, 2013). This program was divided into two parts; semester break, and second semester. The example of activities is shown in table 1.

<table>
<thead>
<tr>
<th>Day</th>
<th>Topics</th>
<th>Learning Activities</th>
<th>PCK for NOS Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>- Course introduction</td>
<td>-Discuss teachers’ expectations and Course description</td>
<td>Orientation to teaching science,</td>
</tr>
<tr>
<td></td>
<td>- Look back to</td>
<td>- Analyse teacher’s teaching and orientation to</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ourselves - What is NOS?</td>
<td>teaching science - Draw yourself in classroom, Card sorting, and discuss about orientation to teaching science - Delineate about goal of science education in various document standard - The cube activities and discuss about definition of science - Science, pseudoscience, and non-science - Discover their belief about science - KWIL about NOS - Finding the monster to see the pattern - Tricky track - Old or young woman, Rabbit or duck - The cube activity method V2 - Finding Dino - Draw scientists - Scientists biography - Candy Soda and Scientific inquiry - How to integrate NOS in Chemistry lesson? -NOS and its aspect in science education standard -Extract NOS statement from the chemistry lesson -check views of NOS</td>
<td>Knowledge of NOS curriculum, NOS aspect, NOS aspect</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>How to integrate NOS in chemistry? Pabi’s show case</td>
<td>- Reviews NOS aspect - Flashback to the past, think about NOS in our teaching practice - Content representation as a tool to develop NOS - Atomic theory role model</td>
<td>Knowledge of NOS teaching strategies/ NOS aspect</td>
</tr>
<tr>
<td>4</td>
<td>Capture NOS through case of teacher teaching</td>
<td>- Analyse case video analyse by using NOS - Analyse NOS students’ answer - Analyse NOS lesson plan - Present their CoRe</td>
<td>PCK for NOS</td>
</tr>
<tr>
<td>5</td>
<td>Translate NOS in action</td>
<td>- Micro teaching - Show case of Giftsy - How to use the question to explicit NOS</td>
<td>PCK for NOS Knowledge of NOS assessment</td>
</tr>
<tr>
<td>6</td>
<td>Reflect themselves and build on research question based on NOS</td>
<td>- How to write Reflective journal - Analysis their teacher teaching - How to teach radioactivity - Introduce chemistry resources - Introduce the tool for assess NOS</td>
<td>Knowledge of NOS assessment</td>
</tr>
<tr>
<td>7-10</td>
<td>Reflect on teaching Show case about AR</td>
<td>- Reflect on teaching Practice - Show about research on AR and NOS in international level</td>
<td>PCK for NOS</td>
</tr>
</tbody>
</table>
THE DEVELOPMENT OF BEGINNING CHEMISTRY TEACHERS’ UNDERSTANDINGS OF AND ABILITY TO TRANSLATE THE NATURE OF SCIENCE WITHIN A PCK-BASED NOS PROGRAM

<table>
<thead>
<tr>
<th></th>
<th>related to NOS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>- AR presentation</td>
<td>PCK for NOS</td>
</tr>
<tr>
<td></td>
<td>- Reflection of PD program</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Present AR</td>
<td></td>
</tr>
<tr>
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<td>- Reflect throughout the PD program</td>
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</tr>
</tbody>
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Table 1: Outline of the program

4. RESULTS.
4.1. Change in understanding of NOS
At the beginning, the data indicated that all teachers held various views of NOS which is shown in table 2 especially, in definition of science, scientific theories and laws, and myth of scientific method. In the definition of science, all of them understood that science is the body of knowledge that was around human body. They explained science as the knowledge in the nature and like subject that include with physics, chemistry and biology. In addition, all of them understood that science demand both the systematic ways to investigate and empirical evidences to support knowledge then it will be accepted but other just collected the knowledge from multiple resources.

<table>
<thead>
<tr>
<th>NOS</th>
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<th>Nana</th>
<th>Paula</th>
<th>Giftsy</th>
<th>Rainy</th>
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<tr>
<td>Scientific Worldview</td>
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<td>Pre</td>
<td>Post</td>
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<td>Definition of Science</td>
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<tr>
<td>Theories and Laws</td>
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<td>Scientific Inquiry</td>
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<tr>
<td>Myth of Scientific Method</td>
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<td>Scientific Investigation</td>
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<td>Observation and Inference</td>
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<tr>
<td>Subjectivity and theory -laden</td>
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<tr>
<td>Creativity and Imagination</td>
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<td>Scientific Enterprise</td>
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<td>Pre</td>
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<td>Pre</td>
<td>Post</td>
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<tr>
<td>Social and Cultural Embeddedness</td>
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<tr>
<td>Relationship between science technology and society</td>
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</table>
In the sub aspect of scientific theory and law, Rainy and Paula viewed the meaning and laws correctly but the raise of teachers could not separate its differentiation. They mentioned that the both theories and laws are for explanation in natural phenomena. Scientific laws seem to certain than theories. Some teachers thought that laws cannot change while theories can be changed. Interestingly, they gave the reason that since they learned science they never saw the changing of laws while theories always change. So, it was no surprisingly about the tentativeness of scientific theory and law, in the reason mentioned above.

Interestingly, in scientific inquiry and scientific enterprise aspect, all of teacher held adequate views of NOS in each sub aspect. They understood about the role of observation and inference, creativity and imagination, subjectivity and theory-laden, relationship between science technology and society and the characteristic of scientists.

4.2. Change in Abilities to translate NOS

The analysis revealed that teachers’ ability to translate NOS were gradually increase in various level. Teachers tried to translate some NOS aspect in specific chemistry content in their classroom practices. They started with specific chemistry content and at least tried to explicitly narrate, and discussed to their student, for instance, Nana’s 2nd teaching (biomolecule substances) began with using some video clip about protein substance to teach her students then elaborated in more detail. She integrated the contextualize NOS by incorporating the video clips’ reviewing of glutathione supplementary in daily diet. She stated “…Using this clip video is the easiest way to start connecting with NOS aspect. I want my students to recognize the disadvantage of using science and technology through the real incident…” Explicit discussing on specific chemistry content related to students’ task were used to express some NOS aspect. Rainy relied on students’ presentation about the mineral industry. Her students were asked to present on the exacting process of element. when students had finished presentation, her students were needed to ask question. Rainy began using questioning as precursor to integrate NOS aspect.

Lab activity was another way that used for reflecting scientific investigation. Paula’ Students were asked to demonstrate the experiment in chemical equilibrium. Each factor was distributed to each students’ group. They then were asked to prepare, demonstrate and present on how it works and how it was prepared in class. Each group had their factor and were needed to
communicate the result to another student. However, teacher did not explicitly discuss NOS aspect even he mentioned that he already integrated NOS Similarly, Giftsy lectured on the development atomic theory. She described and explained each model. She wanted her students to realize that science can be changed but in her teaching, she tried to pose questions and ask student to discuss. She believed that her student would get this concept while she was teaching.

5. IMPLICATIONS/DISCUSSION.
The results revealed teachers had more adequate views of NOS and gradually translated NOS in specific chemistry content after enrolling the program. They tried to adapt the characteristic of some activities and the role of researcher when they joined in program. Even They held informed views of NOS, it did not guarantee that they successfully translated in their teaching practices. It was no surprisingly that even most of teachers gradually translate NOS in chemistry teaching, they did not want to integrate some difficult NOS aspect such as scientific theories and laws even they held partially informed to informed views. It might be because they thought that this NOS aspect was difficult for students and teachers to teach (Deniz and Adibelli, 2015). They preferred to translate the easier aspect such as STS, works and characteristic of scientists, and science demand evidences. In addition, the nature of chemistry content such as stoichiometry is served as another possible thing that impede teachers’ translating of nos. All teachers mentioned about the quantitative chemistry were difficult to integrate NOS. Another possible is the lack of educational resources for guiding them to translate NOS in chemistry content. Therefore, our participants strongly required the example of effective teacher who successfully translate NOS. Deniz and adibelli (2015) called for a packet of NOS activities that are designed to teach particular NOS aspect. In addition, Hanuscin et al. (2011) argues that there should have the educational resources more than cookbook. They called for educative curriculum material that covering the example of particular NOS aspect, the lesson learned from successful teachers, and allow teacher to add important ideas to their repertoires.

The finding suggests that most activities plays important role for allowing them to develop understanding and integrate in chemistry teaching. They could transform NOS in specific chemistry content in various level. Focusing through the strategies in PCK for NOS program, many of strategies in this program could be fruitful for developing beginning chemistry teachers’ PCK for NOS. First, incorporating classroom action research for sustaining
teachers’ PCK for NOS could be considered as an effective strategy to facilitate to change teachers’ teaching NOS (Cullen, Akerson and Hanson, 2010; Krajewski and Schwartz, 2014). Even most participant expressed that conducting classroom action research did not influence much in their understanding of NOS but had strongly effect to their confidence to translate NOS (Krajewski and Schwartz, 2014) and change their mindset in integration of NOS in chemistry teaching from the difficult task. Second, reflection, and feedback to another teacher in program between teachers and researcher was found to be a key factor to help teachers develop their ability Simon et al. (2011).

6. CONCLUSIONS
The most interesting findings in our analysis revealed the impact of PCK-based NOS program to teachers’ understanding of and abilities to translate NOS. The research study also showed the way of how teachers represent NOS in teaching. Even all neither held informed views nor well-translated NOS, at least, they did develop both understanding of and ability to translate NOS. The further research should show how to help teachers translate NOS in topic specific chemistry such as stoichiometry.

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THE DEVELOPMENT OF BEGINNING CHEMISTRY TEACHERS’ UNDERSTANDINGS OF AND ABILITY TO TRANSLATE THE NATURE OF SCIENCE WITHIN A PCK-BASED NOS PROGRAM


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Developing STEM Teachers through both Informal and Formal Learning Experiences

Donna Stokes¹, Paige Evans², and Cheryl Craig³

¹University Of Houston, Department of Physics
dstokes@uh.edu
²University of Houston, Department of Mathematics and teachHOUSTON
pkevans@central.uh.edu
³Texas A&M University, Department of Teaching Learning and Culture
cheryljcraig@tamu.edu

ABSTRACT
This article illuminates the impact of the teachHouston on students' pursuing Science, Technology, Engineering, and Mathematics (STEM) teaching careers at a time when there is a considerably shortage of qualified teachers in America’s urban centers. As part of a National Science Foundation Noyce Scholarship grant, both informal and formal learning opportunities were created and implemented to better prepare preservice STEM teachers and to build self-efficacy. A Noyce Internship Institute, created to prepare pre-service STEM teachers to serve as camp counselors and teaching assistants in a summer STEM camp for underserved middle school students, introduced preservice teachers to interactive training sessions that model best teaching practices. Additionally, a Physics by Inquiry course was developed and implemented by physics and teachHouston faculty to engage preservice high school STEM teachers in interactive, inquiry-based teaching pedagogies for physics. The course focuses on increasing the knowledge base for teaching Physics through best practices in inquiry instruction. Evaluation of the course indicates that participants had improved content knowledge and better insight of how to employ inquiry-based learning in the classroom. The informal and formal learning opportunities offered in teachHouston, introduced preservice teachers to professional development opportunities as well as exposed them to activities to build their science content knowledge. The outcomes of this program shows positive indication that formal and formal experiences can impact self-efficacy which may lead to increased production and retention of STEM teachers.

KEYWORDS: self-efficacy, Science, Technology, Engineering and Mathematics (STEM), professional development, inquiry-based learning/teaching, teacher education program.

1. INTRODUCTION
STEM education has recently been in the American spotlight because of mediocre student achievements (National Center for Education Statistics,
and waning student performance in comparison to other nations (Adams, Miller, Saul & Pegg, 2013). In *A Nation at Risk*, teacher education was championed as a solution to the U.S.’s challenges to improve STEM education (Gardner, 1983). However, the model/program of teacher education was not identified. To this end, we believe knowledge of STEM teacher preparation through formal and informal experiences is necessary to develop an effective model for preservice teacher education programs.

Preparing preservice teachers for effective teaching in STEM areas has been of considerable interest for decades, and recently, interest has risen due to the global need for students trained for STEM careers. In the U.S., about 80% of jobs in the next decade will require STEM skills. The U.S. is losing jobs to the global work force because local students have been inadequately prepared for careers that require strong math and science skills. This is particularly the case in Texas where, between 2000 and 2005, the state lost more high tech jobs than any other state, and ranked 29th in the number of scientists and engineers in its workforce (The STEM Education Coalition, 2011).

Teachers are an important factor in the role of student success in STEM; therefore, incorporating key principles of research in education and learning sciences into the teacher preparation programs is paramount in transforming the nation’s output of trained professionals in STEM arenas. Successful transformations of teacher education program will require that STEM teachers receive adequate training and possess a strong sense of self-efficacy, which is key to promoting student success.

The *teach*Houston/Noyce Scholarship program aims to provide formal and informal experiences through a Physic By Inquiry Course and a Noyce Internship Institute that create opportunities for students to build skills and increase self-efficacy. *teach*Houston, a STEM teacher education program which is a collaboration between and among the College of Natural Sciences and Mathematics, College of Education and local school districts, aims to combat the shortage of qualified math and science teachers. The Robert Noyce Scholarship Program, which augments *teach*Houston, specifically addresses the preparation and retention of science majors for secondary education in physics. Currently, 67% of American physics teachers in grades 8 – 12 are uncertified and unqualified (National Academy of Sciences, 2007). Many of these teachers are assigned out of field; therefore, it is critical that highly qualified teachers be prepared for STEM instruction through preservice courses. The Physics by Inquiry course was developed to teach preservice teachers physics content through an inquiry approach for knowledge and confidence building. It also exposes teachers to a teaching style that can be used in their classrooms. The course is open to *all* *teach*Houston students; therefore, more STEM preservice teachers will learn to teach physics content through inquiry.
Developing STEM Teachers through Both Informal and Formal Learning Experiences

The Noyce Internship program is a six-week paid summer internship that includes: a two week Noyce Internship Institute prior to the camp and four weeks as counselors/teaching assistants in STEM summer camps. The Noyce Internship Institute offers interactive professional development sessions addressing emergent needs of secondary STEM teachers and hands-on experience with developing/implementing innovative lessons for STEM camps. This study investigated whether a relationship existed between formal and informal experiences of the scholarship program and self-efficacy/confidence in preservice teacher’s ability to be successful in their job. In particular, it aimed to determine if there was a significant difference in confidence in professional preparedness among those engaged in the formal/informal experiences of the teachHouston/Noyce Scholarship program through the Physics by Inquiry course and the Noyce Internship Institute.

2. THEORETICAL FRAMEWORK

It is critical that teacher education programs provide ongoing informal and formal experiences that create opportunities for preservice teachers to build teaching and professional skills which can increase self-efficacy (Tuchman & Isaacs, 2011). A strong sense of self-efficacy is important for teachers to influence students’ academic performance in STEM where teacher-efficacy has been correlated to student achievement outcomes (Moore & Esselman, 1992; Ross, 1992; Muijs & Reynolds, 2002) as well as to student self-efficacy (Anderson, Green & Loewen, 1988). Bandura identified four sources which can be used to determine levels of self-efficacy: mastery experience, vicarious experience, social persuasion and emotional/physiological states (Bandura, 1997). Exposure to multiple forms of formal/informal teaching experiences related to these sources may help preservice teachers become more confident and competent as they embark in their future roles as teachers.

Mastery experiences gained through formal activities of the Physics by Inquiry course were used to determine self-efficacy. Research has shown that teaching methods (Bandura, 1997) as well as mastery of the content can improve teacher confidence in the classroom. Inquiry teaching, which traces its roots in constructivist learning theories (Piaget, Dewey, 1997; Freire, 1984; Vygotsky, 1962), develops higher-order thinking skills and is a teaching method which strongly correlates with how well students learn physics (Fencl & Scheel, 2005; McDermott 1993, 2007). Most pre- and in-service teachers have not been exposed to learning/teaching science through inquiry; therefore, it is difficult for them to conduct their classrooms using this type of instruction. Teacher
preparation through the inquiry course coupled with activities offered in the Noyce Internship Institute, creates opportunities to improve teacher self-efficacy (National Science Education Standards, 1996). Modern professional development research/theories reject the ineffective workshop model and encourages professional development based on opportunities that promote pedagogical skill development geared toward a specific content which has a strong effect on practice as well as address how teachers learn (Blank, de las Alas, & Smith, 2007; Wenglinsky, 2000; Snow-Renner & Lauer, 2005). The Noyce Internship Institute provides content specific interactive professional development sessions which cover topics including: Working with Middle School Students; Professionalism; What is Facilitation; Classroom Management; Technology; and Growth and Fixed Mindset. For example, extensive work has been done on the importance of teacher self-efficacy in classroom management, student engagement, and student success (Bandura, 1993; O’Neill, 2011; Khan, 2013). O’Neill developed a metric, Classroom Management Self-Efficacy (CMSE), to separate this vital component of self-efficacy from other forms of self-efficacy. It has been suggested that self-efficacy be improved in pre-service teachers by increasing the direct instruction of classroom management strategies in teacher preparation. Tuchman and Isaacs (2011) found that classroom management may be improved by formal teacher preparation at the university level, i.e., through teacher education program activities. Another source used to determine self-efficacy is vicarious experiences, like the informal experiences gained through discussions in the Physics By Inquiry and STEM camp interactions, i.e., interactions of preservice teachers with master teachers, who guide them through curriculum development, and campers, may motivate and strengthen self-efficacy early in their career.

3. METHODOLOGY.

3.1. Participants
Participants for this study were students enrolled in the teachHouston who were/were not participants of the Noyce Scholarship Program. This included students enrolled in the Physics By Inquiry course and interns from the Noyce Internship Institute. The sample for this study was \( n = 121 \) which was comprised of majors/minors of the following disciplines: physics biology/biochemistry, chemistry and Math. The sample consisted of 65 females and 56 males.

3.2. Measures
Recognition of informal learning activities by the learner and validation of how they impact their outcomes is of great importance for achieving success. For
example, the TRAILER (Tagging, Recognition, Acknowledgment of Informal Learning Experiences) project (Garcia-Penalvo, 2013) is based on analyzing reports by learners of informal learning experiences, tagging these experiences and relating them to particular competencies. For this work, qualitative analysis of Teacher Interest and Pre and post Inquiry-Based Instruction Surveys, were used to ascertain the effects of formal/informal experiences on preservice teacher self-efficacy. The Teacher Interest survey utilized was adapted from the Teachers’ Sense of Efficacy Scale created by Tschannen-Moran and Woolfolk Hoy (2001). The Inquiry-Based Instruction Survey was adapted from Marshall and Petrosino (2010). These surveys, comprised of Likert scale questions, gave insight into the effect of the Physics By Inquiry course and Noyce Internship Institute on their success and self-efficacy/confidence as a teacher. Dependent variable of informal teaching experiences were self-reported where respondents were able to indicate multiple types of informal teaching experiences for analysis. Qualitative interviews were also conducted to determine the nature by which the formal/informal experiences impacted their self-efficacy.

4. RESULTS.

Pre- and post-survey responses were analyzed to determine identifiers which could be directly connected to remarks about content knowledge and their comfort level with utilizing the inquiry style teaching method in their classroom. Pre Inquiry-Based Instruction Survey data showed that 77% of the students were familiar with inquiry teaching/learning before enrolling in the course. Respondents recognized that inquiry teaching would entail active participation; however, they were not clearly aware of how/what was required in inquiry based instruction in a classroom. For example, when asked ‘What do you consider to be the key elements of inquiry-based instruction? In other words, how would you recognize inquiry-based teaching in a secondary science classroom?” one student, we will refer to as Respondent A, responded:

“I believe it is based more on independent research than on detailed instruction in the classroom.”

Remarks of this type were labelled as markers indicating low self-efficacy related to inquiry teaching activities. Post-surveys indicated that, after completion of the Physics By Inquiry course, 100% said they would implement inquiry in their classrooms based on their experience which strengthened their content knowledge and confidence in using inquiry teaching style, hence,
indicating improved self-efficacy. When asked the same question on the post survey, Respondent A commented:

“Students are allowed to make discoveries, inferences, and hypotheses on their own. Instead of formulas and algorithms being given to them and just being told to “believe it”, they get to actually see and figure them out for themselves.”

An additional comment which indicated improved self-efficacy related to inquiry teaching activities included:

“I’m really excited to adapt the methods I learn in this class and apply them in my future biology class. I think it is incredibly effective and enjoyable when the student gets to explore and I’m looking forward to better understanding this method of teaching.”

Teacher Interest Survey data was used to determine how professional development in conjunction with camp experiences, effected teacher self-efficacy. Multiple types of formal/informal teaching experiences were reported by the participants. Examples of informal experiences included: discussions with Master teachers and interaction with campers. Qualitative data, based on comments from the survey, demonstrated improved confidence in the participant’s ability as a teacher. For example, comments included:

“The camp increased my confidence about becoming a teacher. I see myself helping students and enhance their learning abilities through the use of technology”

“Participation in a camp prepared me for the difficulty a teacher can experience in managing student/child behavior.”

Based on the survey results, participants were selected for qualitative interviews which were transcribed to determine common themes related to program participation and increased self-efficacy. Sample quotes from these interview are used as indicators for self-efficacy. A math major observed:

“Receiving the Noyce Scholarship has really opened new doors for me in regards to my teaching career. I am now pursuing a minor in Physics, and I am planning on receiving a teaching certification for both mathematics and physics, which I feel will provide me with an opportunity to become a more well-rounded teacher in the future.”

A Biology/Biochemistry major noted:
“I am very grateful to have received the Noyce Scholarship and have access to all of the wonderful professional development opportunities that came along with being a Noyce scholar …”

Pre- and post-surveys and interviews indicated that through formal and informal experiences, Noyce scholars and interns, felt they were better prepared to teach and motivate their students. Providing content specific courses and professional development was associated with improved self-efficacy; thereby, teacher education programs should consider including these types of experiences for producing STEM educators.

5. IMPLICATIONS/DISCUSSION.

Many studies have establishing guides for recognizing, validating and evaluating informal learning experiences and their influence on the outcomes of the learner and the system, i.e., educational program (Halliday-Wynes, 2009; Garcia-Peñalvo, 2013). This study was designed to elucidate how informal/formal learning experiences in teacher preparation programs help to build not only pedagogical skill, but also teacher self-efficacy in the areas of instructional strategies, student engagement and classroom management. This analysis required real-world field experience, like those of the Noyce program, where pre-service teachers applied theory and pedagogy through their personal lens.

This study informs university teacher preparation programs about the need to include informal/formal teaching experiences. In particular, content-specific courses utilizing alternative teaching technique such as inquiry which has been shown to improve learning gains in STEM subjects, are important for building self-efficacy/confidence in content knowledge. These courses also offer content specific training for those not majoring in that field, thereby increasing the number of teachers trained to teach specific subject areas.

6. CONCLUSIONS

Overall, the study revealed that formal and informal teaching experiences related to improved self-efficacy in the areas of content knowledge and professional development. Preservice teachers appear to be more apt to utilizing inquiry-based instruction in their classrooms if they have a personal STEM experience learning in this manner. A professional development component further assists prospective teachers with the classroom implementation of inquiry-based instruction.

Through the teachHouston/Noyce Scholarship Program, eighteen Noyce Scholars have graduated; ten graduates are certified to teach physics (prior to
this program, the university had not graduated any students certified to teach physics in over a decade; There are currently fourteen continuing scholars. Forty-eight interns have served as camp counselors and all but four of the interns remain enrolled. The retention rate of scholars and interns is 95%. The “Physics by Inquiry” course has enrolled 95 students in five semesters with enrollment continuing to increase. Incorporation of this course led to 12 students pursuing the Science Composite Certificate; and strengthened the physics content knowledge for students not majoring/minoring in physics. Due to the course’s success, a similar course was created for preservice middle school teachers and a Biology/Biochemistry By Inquiry course has been developed. This program’s outcomes demonstrate that formal/informal experiences can impact self-efficacy which may lead to increased production and retention of urban STEM teachers.

ACKNOWLEDGEMENTS
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REFERENCES


DEVELOPING STEM TEACHERS THROUGH BOTH INFORMAL AND FORMAL LEARNING EXPERIENCES


Language and literacy development for English language learners: Exploring the potential of literacy events

Jason Jay\(^1\), Mike Richardson\(^2\), Alessandro Rosborough\(^3\), and Brad Wilcox\(^4\)

\(^1\)Brigham Young University  
  jason_jay@byu.edu
\(^2\)Brigham Young University  
  michael_richardson@byu.edu
\(^3\)Brigham Young University  
  alex_rosborough@byu.edu
\(^4\)Brigham Young University  
  brad_wilcox@byu.edu

ABSTRACT

Literacy is critical for success both in and out of school; yet adolescent English learners (EL) are not performing at the level of their English-speaking peers. Since the EL population continues to grow faster than any other subgroup of students in U.S. schools, it is critical that institutions seek ways to better serve these students. This qualitative study focuses on ways in which one successful high-school teacher designed and enacted literacy events that provided language and literacy support for ELs. The findings describe the actions of the teacher, the opportunities for learning made available by these actions, and how the students took up these opportunities. Teacher actions included creating a safe and comfortable atmosphere, following a routine, and participating in sharing activities. Opportunities included experiences in using vocabulary and language structures, developing and expressing ideas, and reflecting on the meaning of texts. Student actions included various forms of engagement in the activities and content such as speaking up during sharing activities, showing interest in what other students had to say, and not wanting the activities to end. The focus of this presentation will be to show video clips illustrating examples of each of the three findings and open a dialogue about the usefulness and effectiveness of well-orchestrated literacy events to support ELs’ language and literacy development across grade levels and content areas.

KEYWORDS: literacy events, English language learners, English language development, adolescent literacy development.

1. INTRODUCTION

Although an increased emphasis on high stakes testing might encourage skill-and-drill approaches to teaching, it is well documented that such approaches to teaching and memorization of decontextualized facts are insufficient for adolescent literacy development (e.g., Alvermann, 2002). These approaches lead to declined interest in reading during middle school years (e.g. Guthrie,
Alao, & Rinehart, 1997). Children in such learning environments can become disengaged and unmotivated, as evidenced by phenomenon such as the fourth-grade slump (Chall & Jacobs, 2003) and adolescent dropout rates (Stetser, & Stillwell, 2014). One of the problems facing adolescent students is that their literacy needs often go unattended to in school settings even though their literacy skills are falling behind the changing demands of society (Alvermann, 2002). In an International Reading Association (IRA) position statement (Moore, Bean, Birdyshaw, & Rycik, 1999, p. 1), the then president, Carol Santa stated, “Adolescents [in general] are being short changed,” adding that they are largely neglected by policy makers, curricula, and the public. Lack of literacy support for adolescents is even more of a problem for English learners (ELs). ELs are not only grappling with the need to learn a second language (the language of instruction), they are also struggling to master content (Goldenberg, 2012). Supporting ELs is especially crucial since projections estimate that by as early as 2025 one-fourth of all U.S. students will be ELs (Goldenberg, 2008). Currently, there is relatively little research regarding ELs’ engagement in academic endeavors and their mastery of language and content area objectives (Goldenberg, Rueda, & August, 2006). This shortage is especially true for research on adolescent ELs (Phelps, 2005).

2. THEORETICAL FRAMEWORK

In any subject area, teachers can attend to the literacy and content learning of students by developing literacy events that promote language development and simultaneously enable ELs’ learning of necessary content (Pawan, 2008). Thus, one way of addressing the needs of these students is through well-designed literacy events that take place within the context of general education courses and support students in developing language and literacy while gaining subject matter competency.

Literacy events were originally defined as “any occasion in which a piece of writing is integral to the nature of the participants’ interaction and their interpretive processes” (Heath, 1982, p. 93), however, Barton and Hamilton (1998) expanded this definition to include all “observable episodes in which literacy has a role.” This expanded definition might help increase teacher awareness of ways in which content area literacy events can facilitate literacy while students are learning in various subject areas (Pawan, 2008).

Literacy exists within social contexts (Barton & Hamilton, 2000). So literacy events, as social events, should be understood in light of their social contexts. In secondary education, social contexts can change by the hour as students move from classroom to classroom. Thus, widely generalizable practices might not be the primary goal of research in these contexts, but rather, descriptions
of practices that are responsive to immediate conditions (Bullough, 2012), and that take into account sociocultural influences on the learning process. Recently there have been calls for careful studies of individual teachers’ practices wherein skilled teachers address the needs of ELs (e.g., Goldenberg, 2012). Examining how teachers promote literacy within their subject areas could provide insights for other educators in developing their own context-grounded strategies for supporting adolescent ELs. This study focused on how an English teacher used literacy events to provide opportunities for language and literacy development for ELs. The questions for this study were:

1. What actions did this teacher take to facilitate literacy development?
2. What opportunities for language and literacy development were made available by these actions?

3. METHODOLOGY.

This study used video recordings to examine how a teacher used literacy events that included social interactions and mediating artifacts as key elements. It also explored the opportunities for language and literacy development that were made available by these events.

3.1. Participants and Setting
Filming took place in a ninth-grade classroom with 17 students and one teacher, Mr. Ordonez. This teacher was chosen because of his success with low performing students, especially ELs, and the recommendation of his principal and his department chair. The school was located in a large city in central California. The students came from various backgrounds, some were children of migrant workers with English as their second, third, or fourth language, others were third- and fourth-generation descendants of Hispanic immigrants, and one was Caucasian. Although not every student was an EL, they were all struggling with literacy issues, low socioeconomic status, and a lack of academic language spoken at home.

3.2. Data Sources
The focus of this study was an in-depth analysis of the video recordings of an English classroom. Data included video recordings of 28 literacy events. Literacy events were defined based on the following criteria: they included students interacting with each other or with the teacher; the interaction involved a mediating artifact (e.g., a picture or piece of writing); and the teacher acted as facilitator of the event by instigating and ending the event and by
giving direction for how interaction should take place. Literacy events were distinguished by noting changes in topic or mediating artifact, or a change in the grouping of students.

3.3. Data Analysis
Basic descriptive analysis (Merriam, 1998) was used to examine how the teacher created and led literacy events. Analysis involved an iterative process where the researcher identified and interpreted the event, then returned to reexamine the data and the interpretation multiple times using analytic memos to document interpretations and raise questions for later examination (Heath, Hindmarsh, & Luff, 2010). Analysis focused on the teacher’s actions in facilitating the literacy events and the opportunities for learning that were made available during those events. Once interpretation was complete, the researcher reviewed the literacy events and their analysis with an expert in preparing teachers to work with ELs.

4. RESULTS AND DISCUSSION.
The categorical labels of reading, writing, speaking, and listening were chosen to code the literacy events. The next sections provide examples from each category.

4.1. Reading
Throughout the recordings, 17 affordances were made for reading growth. There were nine silent reading events, which included reading novels, poetry, and vocabulary definitions. There were eight oral reading events, which included reading novels, poetry and personal responses. Although each silent reading event was slightly different, they offered similar opportunities for language and literacy development by exposing students to vocabulary and language structures. With exception of the vocabulary definitions, each event also exposed the students to various styles of language use within authentic texts (Nunan, 1988). The oral poetry and novel reading events might have served the same purpose as silent reading with one addition: those students who were less proficient in the language might have benefited from hearing the written language as it was read aloud. By following along, then reading aloud themselves, students could improve pronunciation, prosody, and comprehension. There were two types of silent readings that appeared to be particularly engaging to the students. The first was the daily silent novel reading (e.g., events 1 and 12). The students seemed to enjoy the time they had to read. They
appeared to be completely engaged in the reading activity, and were eager to share their own novels as well as listen as their peers told what happened in the books they were reading.

There was evidence that Mr. Ordonez worked to make these events effective and productive activities for his students. Every day he greeted his students at the door and welcomed them as they entered the classroom. With some of the students, he reminded them that directions for silent reading were projected on the board, and that upon entering they should quietly get out their books and begin reading. Since he did this with only some of the students it appeared he might have been trying to preempt behavior problems or class disruptions. After greeting the students, Mr. Ordonez started the timer and took a seat at one of the groups to read a book of his own for the allotted time, thus modeling the behavior he expected from his students.

The second type of reading event that stood out involved a student volunteer reading aloud sections of the whole class novel (e.g., event 15). No one was obligated or pushed into reading. Mr. Ordonez had previously explained that volunteers were welcome and that if students wanted to read then they needed to put extra time and effort into practicing a section in order to be well prepared to read that section. When no student wanted to read, Mr. Ordonez did the reading himself, thus setting the example by modeling oral reading. The offer for students to read aloud might not itself have supported academic development, but when students took up the opportunity and practiced a section; they were likely to improve language and literacy abilities while rehearsing the language of the passage. Preparation for choral reading presentations that students did each week (events 10 and 14) served this same purpose. Students spent time discussing and rehearsing a poem to present to the rest of the class. By doing this activity weekly, Mr. Ordonez provided students multiple exposures to language patterns and styles.

4.2. Writing

There were a total of seven writing events. In two of them, students wrote responses to a story that was read aloud. Four other events included writing favorite lines from a poem, completing I-saw and I-felt sentences about the poem, writing traits of a person important to them, and finally using the sentences and list of traits to write their own poem. Another event included a discussion about vocabulary words from their homework and writing definitions in their own words. These writing events, provided opportunities for students to improve language use and literacy skills, develop and express ideas and thoughts, and use new vocabulary encountered during other class activities.
Events that allowed students to share their own thoughts generated the greatest engagement. These events asked students to go beyond a surface understanding of the reading, reflect on deeper meanings, and write their thoughts. Having just read the text helped students have fresh in their mind, a style of writing as an example of language structure. They could then formulate their own style or structure while composing written responses.

It was often during these responses when students made the strongest text-to-self connections as seen in event 19 by Jamie’s comment that, “you could do like a text-to-self connection” or by Carlos’ comment that, “you’re relating yourself as a person to the way they’re feeling in the book… You felt a certain way and you felt in tuned.” These events appeared to have helped students make connections with the stories and characters of the text, and served as tools in helping them make connections with the language and the structure of the text as well.

One of the ways Mr. Ordonez supported student writing was by circulating the room to answer questions and offer suggestions to students who were struggling to write a response, and by having students share their work with peers. First, students shared in small groups. Then he asked if anyone would like to volunteer someone from their group to share with the class. By allowing students to volunteer friends he removed the fear a student may have had of being a “show off” while at the same time motivating students to write well, since they may have to share aloud. Some students were very interested in sharing with their peers and often volunteered themselves. Mr. Ordonez always accepted their comments. Other students were not excited about the prospect of speaking up. Nevertheless, these students were often given opportunities to share when their peers volunteered them, which Mr. Ordonez encouraged as a tool to bring them into the conversation.

For example, during event 26, Mr. Ordonez asked if there were any responses that the whole class should hear, which meant students could volunteer each other. Immediately, Juan volunteered himself and another student volunteered Mateo. After their comments, Maria was prompted by a friend to volunteer. Then a student volunteered Lucas. At that point, the teacher moved on for the sake of time but we still heard a couple students in the background volunteering their friends.

4.3. Speaking and listening

Examination of Mr. Ordonez’s methods demonstrated that he highly valued both speaking and listening as tools for learning. He made sure that every reading and writing event was coupled with a speaking-listening event. For small group events, he required that every student take a turn sharing. For
whole class events, he invited all students to share but did not make it mandatory. Although, occasionally he did ask students to volunteer another student whom they felt had something everyone should hear.

In total, there were 15 speaking-listening events; the majority (9) were events where students shared their thoughts on a prompt, either just before or just after reading a text. They also had the opportunity to comment on each other’s statements. The other events included two opportunities for students to share what they had read during silent reading, two discussions about definitions and examples of the words, and two informal conversations during group planning for poetry presentations.

The affordances made during these events included opportunities to express and hear ideas, chances to hear and practice vocabulary and oral language structures (in formal and informal registers), and chances to experience and practice communication skills. Since literacy is a social practice (Barton & Hamilton, 2000) and learning occurs through social interaction (Vygotsky, 1978), speaking with and listening to other students provides opportunities to learn how to form responses to properly communicate their thoughts, ideas, and opinions.

5. IMPLICATIONS AND CONCLUSIONS

One key to implementing effective literacy events is for educators to observe how successful teachers incorporate such events into their curriculum. This can give educators ideas on how to create a suitable environment that encourages interaction between students and with the teacher. Further, observation of students can help educators better understand actions that evidence engagement and learning.

Another key is using text and other artifacts to provide exposure to language and vocabulary. Students benefit from reading independently, orally, and chorally and listening to others read and speak. Sources that help provide exposure to language may include, but are not limited to, print and online texts, videos, audio recordings, and speech of other people. Multiple opportunities for speaking and listening, coupled with reading and writing activities, provide the extra support that ELs need.

A third key is for teachers to provide multiple opportunities for students to practice language daily. Students could be expected to share thoughts and ideas with peers and the teacher both orally and in writing. Students can share in small groups, where they may feel more comfortable, then volunteers can share with the whole class. Teachers can encourage participation by asking students to volunteer their peers. The more students are exposed to and use language, the more language they will acquire (Vygotsky, 1986).
Overall, students can benefit from exposure to and practice with reading, writing, speaking, and listening to language and vocabulary. Teachers should incorporate literacy activities that include all four aspects of literacy. They could create learning spaces that provide many opportunities for speaking and listening before, during, and after reading and writing. This social interaction is instrumental for supporting the ongoing language and literacy development of adolescent English language learners.

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Building teacher professional identities: required knowledge according to Teacher Training Course student narratives (São Paulo/Brazil)

Celi Rodrigues Chaves Dominguez¹, Valéria Cazetta², Luciana Maria Viviani³, Josely Cubero⁴, and Fabiana Curtopassi Pioker-Hara⁵

¹Universidade de São Paulo – Brazil
celi@usp.br
²Universidade de São Paulo – Brazil
vcazetta@gmail.com
³Universidade de São Paulo – Brazil
lviviani@usp.br
⁴Universidade de São Paulo – Brazil
josely@usp.br
⁵Universidade de São Paulo – Brazil
fpioker@gmail.com

ABSTRACT
The formation process of teacher professional identities is continuous and occurs at both individual and collective levels, since interpersonal and institutional relationships may influence that process. Internships are the main instrument for teachers-in-training to secure a temporary placement in a school and participate in its daily routine. Such placement enables those students to get to know teaching work as different from what they knew as elementary pupils. They also come to realize the range of knowledge required of teachers – both theoretical knowledge and that which they use in their professional activities. Therefore, internships may deeply influence the formation of the students’ teacher professional identity. To investigate how this influence is exerted, we analyzed short-movies produced and edited by Science Teacher Course students during their internships in elementary schools. We aimed to identify what teacher knowledges were explicit when they chose to feature Science teachers in the movies, in interviews and in takes from Science classes. Our partial results indicate that students mention different types of knowledge, from specific Science concepts to teacher strategies, class control, class motivation and discussion about controversial themes such as gender and environment. We conclude that students think Science teachers need to appropriate not only specific knowledge from Science, but also the necessary and broader teaching knowledge, in order to maintain class control and dynamics. Moreover, the short-movies also contain much criticism of the current school model, whose organization, they claim, contains control mechanisms that de-characterize schools as places for building knowledge.
KEYWORDS: internship, science teacher training, professional identity

1. INTRODUCTION

In the field of teacher training, one of the discussions that have merited attention by scholars is that of the constitution of the teachers’ professional identity, in the scope of both initial training and professional practice. Several authors highlight that the formation process of teacher professional identity is continuous, since it is a phenomenon of the collective scope (Lask, 2005; Beijaard, Meijer E Verloop, 2004) and is influenced by different forms of socialization which the teacher has undergone in the course of his or her life (Tardif, 2014).

One of the important moments in the formation of professional identity is the period in which the Licenciatura students undergo the compulsory internships, as this experience allows them to play roles similar to that of a teacher. Despite the fact that the many discussions around the formation of professional identity could be generalized for teachers in all areas of knowledge, it is worth highlighting that one of the factors that interfere in the identity of a teacher, according to Tardif (2014), is the set of disciplinary knowledges to which this professional has access in the course of his or her academic trajectory. It is precisely such specific knowledge of each area that enables the teacher to teach one discipline and not another.

Thus, it is interesting that investigations should be carried out about the specifics of each disciplinary field. As Science was used as a reference for this reflection, the question asked was: what characterizes a Science teacher regarding his or her identity constitution?

The Natural Science Licenciatura (NSL) course taught at the School of Arts, Sciences and Humanities at the University of São Paulo aims to train Science teachers to work in Basic Education.

One of the activities of the internship consists in the production of an audiovisual narrative (video shorts) in which the students must present in a reflexive way something that have caught their attention in the classroom interactions observed in the school/field.

With the aim of trying to identify the representations of what is to be a Science teacher as formulated by the future teachers, an analysis of a few of the videos produced by the students is be presented below.

2. THEORETICAL FRAMEWORK

Pimenta & Lima (2004) highlight the compulsory internship as an important practice in the future teacher’s identity formation process, since this is the chief
BUILDING TEACHER PROFESSIONAL IDENTITIES: REQUIRED KNOWLEDGE 985
ACCORDING TO TEACHER TRAINING COURSE
STUDENT NARRATIVES (SÃO PAULO/BRAZIL)

bridge between university studies and the universe in which he or she will work. For Tardif (2014), teacher training is inherently diversified, since it stretches over time (beginning before the student’s choice of professional career and continuing in the course of the whole of one’s professional life), it develops heterogeneously (the necessary knowledges for the exercise of teaching originate from various different sources) and, also, it is personalized (even if there is a set of knowledges shared by all teachers, the exercise of teaching itself takes place as a unique experience to each professional). Lopes, Mello & Arruda (2005), grounded on the works of Tardif, point that

“the teacher-in-training already holds, previously built, some model of what is to be a good teacher or of the teacher he or she would like to be, and also a manner of relating with the school and students, because the teacher brings in a certain more or less structured professional attitude, even if unconsciously so”. (p.3)

As they studied the reports by an intern of a Biology course regarding the teachers he had observed, Lopes, Mello and Arruda (2005) noticed the identification of the intern with one teacher but not with another. According to the authors, although the intern did not resort to didactic-pedagogical theories to evaluate the teachers he observed, he tried nevertheless to “obtain theoretical arguments that justified his preference”. (p.5).

Taking into account such statements, our decision to analyze the production by interns of the NSL course via their audiovisual narratives about the Science teachers they had observed seemed to be right, as they constitute rich material to understand the ways in which the process of identification by the students with the position they will take up occurs.

For our analysis, we have chosen the notion of teaching knowledges, grounded on the ideas of Tardif (2014), who points out that teacher training takes place by means of the weaving of diversified knowledges of distinct origins, including even school life prior to the professional choice and personal experience.

The author classifies teacher knowledge into four types.

The professional training knowledges correspond to those originating in studies of the educational area and that compose the disciplines of Teacher Training Courses; the disciplinary knowledges refer to the specific disciplines that provide teachers specialization in a certain area of knowledge during initial training in graduation courses; curricular knowledges are built in school institutions where the teachers work and feature certain ideological choices, curricular discourses and practices; and, finally, the experiential or practical
knowledges, which are those that the professional acquires by means of teaching’s daily practice. (Tardif, 2014)
For the author, the teacher

“is someone who must know their subject, their discipline and their program, besides holding certain knowledge about the sciences of education and pedagogy, and also who must develop a practical knowledge based on their daily experience with the students. These multiple articulations between teaching practice and knowledges make of teachers a social and professional group whose experience depends, to a great extent, on their capacity to dominate, integrate and mobilize such knowledges as conditions of their practices.” (Tardif, 2014, p. 39)

As for the NSL students, how did the Science teachers observed during internship characterize themselves? What are the knowledges valued by the interns when they build narratives about Science teachers?
Below, we present the methodological procedures that we have adopted in order to answer such questions.

3. METHODOLOGY
In the year 2016, the interns produced nine videos on the issue of classroom relationships of any discipline. Of the nine videos, three referred in some way to Science teachers. These were the videos chosen for our analysis, since our aim is to discuss a specific aspect - the constitution of teacher identity in future Science teachers.
The videos will be named A, B and C.
The three videos were analyzed with the aim of identifying what teaching knowledges were valued and emphasized by the interns as they built audiovisual narratives about Science teachers who they followed in the school/fields. What was highlighted in their representations of what characterizes a teacher and that should be valued in them?
In order to organize the analysis we have chosen to use the knowledge categories proposed by Tardif (2004), as previously stated.

4. RESULTS AND DISCUSSION
In video A, the narrative constructed by the intern aims to highlight a few aspects of the modular Teaching Youngsters and Adults program (TYA) and identify its social importance. The video features two interviews with very experienced Science teachers. The first teacher explains how the modular TYA works: the Science module is developed in the course of 25 consecutive days featuring three daily classes. The teacher here does not take a position pro or against the format of the course.
Therefore, in this section of the video, some of the curricular knowledges are highlighted, since they refer to a work mode specific to that institution. The second teacher, on the other hand, explicitly spoke of knowledges of various natures, at the same time.

She stated that “the chief aim of Science teaching in TYA is to lead the students to reflect about the their role on planet Earth, building an awareness regarding the use, preservation and destination of natural resources, as well as the interaction of Man with other living beings, so that there is a reflection about human quality of life in all aspects”. These words render explicit the professional training knowledges, since they refer to issues geared towards scientific education. But they also feature the disciplinary knowledges as she mentioned the examples of scientific subjects that she presents to students.

In order to answer the question formulated by the intern, regarding the importance of Science teaching for TYA, she mobilized experience knowledges in the following words:

“…but it is gratifying, significant, because they are able to relate the content to their daily lives. The importance of content. For instance, sometimes I speak of disease, trash, preservation, especially of water, even epidemic diseases that sometimes they are victims of, and pupils find that we are talking about these things in the classroom.”

Only the experience of having worked in the situations indicated could have allowed the teacher to know what pupils are really able to do (“relate the content to their daily lives”) and know that this is “gratifying”.

Video B features a narrative about the work of two teachers who the intern admires: the Science teacher and the support teacher.

She formulated three questions to be asked separately to both teachers. They were: 1. How is the teacher-pupil relationship according to the pedagogical guidelines of this school? Are students seen collectively or as individuals? 3. What does teaching mean to you?

In his answer to question 1, in which the intern herself refer to curricular knowledges, the Science teacher shows professional training knowledges, repeating a recurrent discourse in the area of Education: “We try to understand the needs of the pupils and seek solutions and proposals to meet such needs”.

Then the answer to question 2 is presented:

“I think that, in general, we teachers try to understand the individuality of each pupil, but, at the same time, make them understand that he or she is part of the collective. So we respect the individuality of the pupil within his or her specificity, but always showing that, despite the differences, despite their individuality, he or
she is being part of a group. I try to portray two situations: having a moment to understand this personal issue, but, also, show that we are a collective and that we play important roles in order for this collective to flow in the best possible way regarding this kind of learning.

Once more we find evidence of professional training knowledges, as the educational discourse is repeated in the form of a defense of the respect for individuality and awareness of the collective constitution of the student group (citizen education). We also find evidence of experience knowledges when the teacher refers specifically to his attitude as a teacher and how he behaves in front of students.

The answer to the third question also reveals several knowledges in action. First, there are indications of professional training knowledges as he states what he understands to be the role of Science teaching. This can be observed in the following quote:

“…my area is Science, (...) but I think that, more than teaching the formal content, my role is to give the pupil the possibility of understanding his or her importance in the environment, in this planet. To understand that he or she is an integral part of it, interacting with the planet. In other words, to show other ways of seeing the place where he or she lives, the neighborhood, mobilizing another gaze. There is the social issue, there are all the issues of their familial reality, all of these count”.

The continuation of the answer shows evidence of experience knowledge when the teacher explains how he usually develops specific contents:

“But, specifically in Science, which is the area most linked to the environment, to nature, to the planet, I try to bring in a proposal that is often playful, while at other times I present one more focused on the experiment, but always with the aim of providing the pupil with a different view of the planet and of finding one’s place in this planet, always being careful so as to come as close as possible to local reality, so that the proposal does not figure as an abstract thing in his or her life”.

The ending given by the intern to video B is very interesting, as she presents a small text where she states:

“I close this semester understanding the act of teaching as something very particular and that the relationship between pupils and teachers is intrinsically linked to the teachers’ point of view regarding what to teach. Their discourses render visible a search for increasingly better relationships, woven with a thread that is their own opinion, but, unfortunately, also driven by external difficulties that characterize the daily struggle for better conditions by these professionals”
She seems to recognize the complexity that involves the teacher-pupil relationships and the great influence that the professional identity of each teacher bears on these relationships.

Video C was also produced with interviews: the speakers included the school’s headmistress, a few teachers and also a pupil’s mother. The background scene contains a few objects associated to the teaching of Science: a human torso, a DNA model, artificial skeletons and the model of a hearing aid.

Among those interviewed are two female Science teachers boasting in excess of 15 years of experience. One of them refers to the importance of the identification of spontaneous knowledges by the students and the difficulty of overcoming these explanations in the teaching of Science, thus revealing both professional training knowledges and experience knowledges.

“this lived experience they bring in is a very useful contribution, because they do not come unprepared, they come with some grounding and then we just improve on it. We just shape up the knowledge he or she already has. But, on the other hand, sometimes they do not want to change because they are certain they are right. They say: you are wrong, teacher, I have always known that this is the case. And it takes a while to prove that it is not so. But in the end they accept it.”

The other teacher in the video reports her difficulties when teaching Science. She mentions the pupils’ objection to scientific explanations regarding the formation of the universe, due to religious beliefs. She also mentions sexual education, pointing the demand by teenagers as a counterpoint to their families’ resistance, placing the teacher in a delicate and difficult position. Once more we find a mix of professional training knowledges, which are evident in the discourse associated to the teaching of Sciences, experience knowledges, which are revealed in the difficulties reported in the daily activity of teaching Science, and disciplinary knowledges, present in the issues specific to the discipline taught.

As can be noted in the data presented, all of the teaching knowledges described by Tardif (2014) are referred to by the interns in the audiovisual narratives they carried out. Next, we present a few brief considerations regarding the findings.

5. CONCLUSIONS
Grounded on the analysis of the data presented, one can detect that the approach chosen by the interns in building narratives about the Science teachers they observed is not restricted to characteristics specific to the area of Science. The questions they have formulated for the interviews reveal their interest in identifying the opinions and attitudes of Science teachers more closely linked to the teaching practice itself and to the difficulties faced in the
classroom’s daily routine. There was no challenge more directly targeted at teachers’ initial training or issues specific to the discipline of Science. Notwithstanding, disciplinary knowledges were brought up by teachers, though less frequently, in comparison with other categories of knowledge mentioned. But it is very evident that the educational discourse is very present in the teachers’ statements. This could be the result of the artificiality imposed by the way in which the data was collected (video taped interviews), possibly imposing on teachers an attitude of “speaking what is expected of me”. Even so, data reveals part of the identity constitution of the teachers interviewed, and, chiefly, the valuing of experiential knowledges and professional training knowledges by the interns, since the spoken statements by the teachers were edited by the teachers-in-training, who made choices about what would be published in the videos and what would not.

We conclude, then, that the internship experience has propitiated to these interns the construction of diversified narratives about how the Science teachers’ identity was constituted, presenting indications that they consider relevant that the Science teachers should master more than the contents specific to the area and that they should have the knowledge enabling them do their jobs in the school’s daily life.

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BUILDING TEACHER PROFESSIONAL IDENTITIES: REQUIRED KNOWLEDGE
ACCORDING TO TEACHER TRAINING COURSE
STUDENT NARRATIVES (SÃO PAULO/BRAZIL)

Changing teacher education scenario in India: issues and challenges

Balwant Singh, and Manpreet Kaur

Principal, Partap College of Education, Ludhiana, Punjab, India
bsinghpce@gmail.com
Vice–Principal, Partap College of Education, Ludhiana, Punjab, India
moneypreet74@gmail.com

ABSTRACT
There is no profession in the world as challenging as teaching profession. Rapid changes which are occurring in all spheres of life and society are eyeing towards changes in content and practices of education. This has led to drastic change in the concept of teacher education worldwide. Present paper aims to explore the changed teacher education scenario after the implementation of NCTE (National Council of Teacher Education, Govt. of India) new regulation 2014 to meet the global standards and to find out the impact of these new regulations on current status of teacher education. This paper also focuses on emerging issues in International teacher education practices and how these practices help in improving the teacher education in India.

KEYWORDS: Teacher Education, Issues, Challenges.

1. INTRODUCTION
“The most successful education systems invest in developing their teachers as reflective, accomplished and enquiring professionals who are able, not simply to teach successfully in relation to current external expectations, but who have the capacity to engage fully with the complexities of education and to be key actors in shaping and leading educational change.” (Teaching Scotland’s Future, Scottish Government, 2010, p4)

The teacher is the key agent in any education system. The National Knowledge Commission of India (NKC, 2007) observed that the teacher is the single most important element of the school system. Echoing the same sentiments an OECD report observes that the quality of an education system cannot exceed the quality of its teachers since student learning is ultimately the product of what goes on in classroom (OECD, 2010). Similarly, another report from Scotland suggests, “We know that it is the commitment and skill of individual teachers which makes the biggest difference to children’s progress and achievement” (HMIE, 2009, p.3). Teachers, researchers, policy analysts and politicians across the globe often argue and suggest that meaningful and relevant enhancement of teachers’ professional capabilities and commitment to education is essential to improve education as a whole.
Teaching as a profession and the profile of teachers has been continuously changing in India over time and in response to changing demands. The fact is that though the Indian teacher to some extent enjoys the freedom and power within the classroom, but has low social status and self-esteem. The status of the teachers is one of the basic underlying premises to attract and retain persons of ability to the profession. With low professional status, therefore, the choice of becoming a teacher is not the primary option amongst the Indian youth. (Report of the International conference on teacher development and management, Ministry of HRD, 2009). It is obvious that teachers are the backbone of the education system and are central to the reform effort. But for too long in India, teachers have been blamed for poor performance of students and the low levels of learning. However, non-availability of jobs in other sectors encourages many to join as teachers.

In the Indian context, barring a few institutions, the roles of the teacher have been restricted to the classroom and mainly to the conventional teaching of ‘chalk and talk’. The large area of newer teaching methodologies, assessment methods and facilitating the development of students remain untapped. It is not that Indian teachers do not have the ability to understand or apply, but mainly because these types of educational processes are either not understood or simply ignored by the system that is already in place.

India a country of 1.27 billion people, is gearing up to professionalize and modernize their teacher education system to be in synchronised with current social, cultural, technological, and economic situations; and to produce quality teachers to bring improved student learning outcomes. This call to improve teacher education in India becomes more significant considering the fact that 50% of India’s current population is below the age of 25 and over 65% below 35.

2. THEORETICAL FRAMEWORK

When we look at teacher education systems across the globe, the reforms, improvements, and new approaches in teacher education become imperative in every country. A Report of HKIED observes, “For teachers and teacher education, powerful challenges are being driven by substantial changes in political, social and economic forces. These include the growth of an interconnected, complex global economy, unprecedented developments in communication technologies, and the effect of changing social mores on school and classroom environments. In many countries, education reform is driven by a community’s perception of falling educational standards reflected in reduced student learning outcomes.” These societal changes are presumed to influence teacher education (Buchberger, Campos, Kallos, & Stephenson, Furthermore, 2000) the demands on teachers are becoming more and more
complex and this represents true challenges to the profession: multicultural classrooms, integration of students with special needs, use of information and communication technologies, demands for more accountability and evaluation, interactions with the community and the parents, etc. (Eurydice, 2004). So considering the dramatic societal shift the task of renewal of teacher education becomes apparent everywhere in the world.

Teacher Education in India had undergone various transformations over the years due to reforms in socio-cultural and political conditions in the society. Justice Verma Committee had given some important recommendations in August 2012 Report regarding the reformation of Teacher Education. Justice Verma Committee demanded two-year meticulous training of pre-service education for the professionalisation of Teacher Education in line with National Curriculum Framework (NCF, 2005) and National Curriculum Framework for Teacher Education (NCFTE, 2009).

Teacher education in India faced some drastic changes regarding the duration of Bachelor of Education and Master of education in 2014. NCTE (National Council of Teacher Education, Govt. of India a regulatory body for teacher education programmes in India) notified the changes in the duration of, B. Ed. and M.Ed. programmes with new syllabi and more time for (20 weeks) School internship. No doubt that the increased duration of teacher education programmes leads more sensitization towards the emerging demands of the school system but every new change come with some opportunities and challenges as well.

NCFTE (2009) envisioned to have Humane and Professional Teachers. Quality of Teacher Education has been an important issue during the last few years. India has been discussing that the prevalent system of Teacher Education is not appropriate for preparing 21st century teachers. Justice Verma Committee made 30 recommendations covering various facets of the Teacher Education. Some of the main recommendations include:

1. Teacher Education should be the part of the Higher Education System. The duration of Teacher Education programs needs to be enhanced which is very long overdue as recommended by the Education Commission in 1966.
2. For the establishment of Teacher Education Institutions and for the institutional capacity of teacher preparation, the government of India should increase its investments.
3. There should be a transparent procedure for the pre-entry testing of the candidates in the Teacher Education Programme.
4. Teacher Education Programmes needs to be redesigned according to the recommendations of NCFTE 2009.
5. Every Pre-Service Teacher Education Institution needs to be connected with a cooperative school where student teachers get opportunities for becoming reflective practitioners.
6. First Professional Degree or Diploma in the field of Teacher Education should be offered in face-to-face mode only.
7. All the existing Teacher Education Institutions needs to be strengthened specially DIET's and SCERT's.
8. There is a need to develop a framework for the Assessment of the Teacher Performance.
9. There is a need to make the two year M.Ed. course with the provision of specialization in Pedagogic Studies, Foundation studies, Policy and Finance or other areas of concerns in Education.

In order to implement these recommendations' NCTE had issued new Regulations on November 28, 2014 in the Gazette of India. These new regulations have created mixed reactions on the part of stakeholders. No doubt, some new regulations will enhance the quality of the Teacher Education Programmes in the country, but for many Teacher Education Institutions in different states, it had created a lot of Challenges. There are some pertinent questions which are posed with new regulations and needs to be addressed by the Teacher Education System in our country.

3. METHODOLOGY
This research is mainly based on review and analysis of policy documents (reports of four regions i.e. North, South, East and West India review committees of Ministry of Human Resource Development, suggestions and objections invited by NCTE and other available literature and statistics related to teacher education in India. The investigators themselves are experienced teacher educators and also had a number of discussions with teacher education specialists, policy-makers, and practitioners and these inputs have also been used to describe existing teacher education system and recent teacher education reforms in India.

4. RESULTS
Analysis of various documents and reports (especially NCTE 2014 norms) revealed various arguments to favour the changes in teacher education of India. Some of arguments favouring these changes are discussed below:

1. The specific objectives given by NCTE in 1998 are very broad and cannot be achieved within the limited duration of one year. Looking at
these objectives it seems that it is very difficult to achieve these completely in that short duration.

2. In this age of technology, ICT (Information and Communication Technology) has become an important part of Education and prospective teachers should be taught how to integrate ICT in the teaching-learning process and for this, enough time is needed by prospective teachers to practise it. Finding of a study also states, the comprehensive B.Ed. curriculum was not effectively taught due to time shortage. (Hemambujam, 1983).

3. There are certain assumed competencies that are required of all teachers, many of these competencies are related to the development of attitude, personal traits and skills. It is therefore, not enough to teach theory subjects in the traditional fashion and prepare the prospective teachers for external examination. As B.Ed. is a professional degree, teacher educators have used some innovative techniques for teaching. And it also requires thorough preparation on the part of teacher educators, for this they should have enough time.

4. “The teaching profession expects a variety of work experiences from teachers. Adequate scope should be there in B.Ed. programme, for preparation of learning material, question bank preparation, construction of tests, and preparation of different type of assignments.” (Goel, 1999).

5. Due focus should be given on microteaching and practice teaching because the crucial test of a teacher’s competency is his/her performance in school.
6. “Practice teaching is now not merely confined to the teaching of certain subjects. Pedagogical analysis of the subjects offered for practice teaching has been made compulsory.” (NCTE, 1998) “Internship in teaching provides each student teacher with a broad and comprehensive experience in the development of teaching competency far beyond the usual practice teaching. The prospective teacher works in the cooperating school full time and participates in all the activities of the school. This close relationship between the college and cooperating school is bound to result in many benefits to both institutions and also to trainee.” (Mukerji, 1968).

5. IMPLICATIONS/DISCUSSION
Various commissions and committees have recommended the overhauling of teacher education of India to better equip the future teachers with necessary knowledge, skills and attitudes. But there are some practical questions which have come up by new regulations and needs to be addressed by the concerned quarters in our country.

- In what ways this enhancement in duration will ensure quality in teacher education?
- How to prepare school authorities for enhanced period of internship?
- Can these changes bring the Indian system of Education at par International Standard?
- How to incorporate International Practices to improve our teacher education system?

Above and all some educationists, parents and other stakeholders of education feel that these changes in teacher education created a deep crisis in the teaching community as due to extended duration, disenchantment has been created among the students and very few are opting for these courses. So, implementation of new norms for teacher education is a debatable issue in teaching community of India. NCTE also issued a notice inviting stakeholders and the public to send in their suggestions to revise the NCTE regulations, which came into effect two years ago. A committee has been formed to look into its anomalies.

If we look globally, developed nations like UK, Australia, New Zealand, Singapore etc. they all have one-year initial training course, normally taught at a University or other higher education institution, though much of the course time is spent on placement in local schools. In England there are many routes to become a teacher. Scotland has one-year professional graduate diploma in Education. More over school based teacher education with or without any
support from university based teacher education institution has been expanding in UK and US.
Some countries have endeavoured to develop and implement Initial Teacher Education policy as embedded in comprehensive education system reforms, with the involvement of key stakeholders.
In Sweden, national reform of ITE study programmes with the 2010 Education Act ‘Top of the Class’, following up Bologna requirements, has led to a clearer definition of the three main ITE curriculum areas - subject studies, educational studies (60 ECTS), practice (30 ECTS) - with four professional degrees according to school levels.
Finland has developed a successful model for research-based ITE (in place for 30 years now) within an overall collaborative system of curriculum reform, based in education institutions (schools and universities). The system is founded on flexibility and loose standards - building on good practices and innovations, the setting of learning targets and networking - through steering by information and support.
Ireland is another country where teacher professional status is quite high. A 2009 study commissioned by the Teaching Council underpinned recent ITE policy development, outlining key recommendations for effective, career-long teacher learning (Conway et al. 2009). The drive for change did not originate from widespread pressure for major reform, but rather from national reviews recommending greater coherence and integration for the teacher education continuum.
Thus, only enhancement in duration and change in curriculum would not suffice to improve Indian Education system as there is need to create various options to become teacher to fulfil the diverse need of the students who want to come in this profession. Moreover, we have to ensure that the teaching profession embraces the concept of career-long professional learning with initial teacher education to enhance professionalism.

6. CONCLUSIONS
Though many questions need to be answered at present time and all policy makers have to find more alternative solutions to these problems. We have to explore more solutions to make our teacher education programme more quality oriented and more realistic. This is the time to maximise the strengths and minimise the weaknesses of the Indian Teacher Education system. There is a dire need to across the hurdles in the journey which will help in making our Education system more fruitful. There is a hope for Teacher Education institutions, that they will definitely find their identity. The quality may certainly be improved and there is hope for the betterment for all the stakeholders.
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PART IV.
INNOVATIVE PRACTICES AND ICT
Teachers’ Digital Skills training by using the Educational Innovation based on Evidence methodology (EIBE)

Celia Paola Sarango-Lapo\(^1\), Juanjo Mena\(^2\), and María-Soledad Ramírez-Montoya\(^3\)

\(^1\)Universidad Técnica Particular de Loja  
cpsarango@utpl.edu.ec

\(^2\)Universidad de Salamanca  
juanjo_mena@usal.es

\(^3\)Tecnologico de Monterrey  
solramirez@itesm.mx

ABSTRACT
Digital competences have become one of the key requirements of teachers in today’s education. These allow teachers to enhance the integration of technologies into their practices. However, there is still a lack of training in teachers in digital skills to be able to connect their knowledge with practice. The teacher training in Educational innovation based on evidence methodology (EIBE) allows this connection, since it has been shown to develop digital information competence. This competence helps sustain the formulation of innovative educational proposals that link practice with research. The present study investigates the level of perceived domain of digital information competence in teachers who participated in a virtual course on EIBE of a postgraduate program. The research methodology used was exploratory-descriptive. A questionnaire was applied to 39 teachers and an interview was applied to five teachers. One of the results from the questionnaire was that a low percentage of teachers placed their level of proficiency in the response options of excellent, regular and little dominion, while in a high percentage the teachers indicated to have a good domain, as well, no teacher is described with no domain. The teachers applied digital informational competences in the design and implementation of EIBE’s innovative proposals, this was also found from the interview results. However, the need to continue training teachers is still obvious.

KEYWORDS: training teacher, information skill, digital skills, innovation based on evidence.

1. INTRODUCTION
The development of digital competences as one of the key competences of the 21st century plays an important role in teachers and students. This has allowed different organizations such as UNESCO (2008), ISTE (2008), ACRL (2000), European Commission (2013), INTEF (2017) propose norms or standards...
that orient educational institutions in training in technological skills and in the reflection on the integration of technologies in their practice. Undoubtedly the use of different technologies will favor the search, evaluation, storage and dissemination of information (Hepp, Prats and Holgado, 2015). However, the levels of integration of technologies vary according to the training, updating and innovation programs that the teacher incorporates into his teaching-learning processes (San Nicolas, Fariña and Area, 2012).

An adequate integration of technology into teaching practice demands training programs that lead the teacher to link their knowledge with practice. The EIBE methodology seeks to enable the teacher to apply digital information competences (search, evaluation, storage and communication) to support innovative practice proposals, thus linking teaching practice to research supported by digital skills (Ramírez, 2012). The training of teachers should be oriented to the reflection on the uses that can make of the technologies, which must be derived in innovative proposals that enhance the processes of teaching-learning (Hepp, Prats and Holgado, 2015).

The purpose of this paper is to investigate the level of perceived domain of digital information competence in teachers who participated in a virtual course on EIBE.

2. THEORETICAL FRAMEWORK

The development of digital competence in students is key to their integration and significant participation in the Knowledge Society. As pointed out by Pozuelo (2014), we are currently living in a process of permanent change, fundamentally in the ways of communicating, managing and use of information. In this way, informational digital competence acquires relevance, according to ACRL (2000) it is conceived as the set of skills to recognize the necessary information, locate it, evaluate it and use it effectively; As well as transforming it into knowledge (European Commission, 2013). Therefore, according to INTEF (2017), teachers, as responsible for teaching students, must be able to guide them in their learning process through the new means and forms presented by the Knowledge Society.

Several agencies and institutions developed standards aimed at teacher training in digital competition. Some of them like Unesco (2008), ISTE (2008), INTEF (2017), which orient educational institutions in the training of teachers to achieve an adequate management and integration of information and technologies in the teaching-learning processes. The three organizations emphasize the management and proper use of the information. In particular, INTEF (2017) describes digital competence in five areas: information, communication, content creation, security and problem solving. Where the
information area is made up by the navigation and search competencies; evaluation; And storage and retrieval of information.

Adequate participation in the Knowledge Society requires innovative teacher training proposals. Several authors have pointed out that technologies alone do not generate changes or educational improvements (Marques, 2013, Area, 2008, Kiridis, Drossos and Tsakiridou, 2006). Hence, the need for educational institutions to provide powerful teacher training programs that encourage teachers to innovate, rethink practice and change their teaching strategies (Pozuelo, 2014). However, research by Badarch, Knyazeva and Lane (2012), Cook, Smith and Tankersley (2012), Ertmer and Ottenbreit-Leftwich (2010) and Tejedor (2007) indicate that there is still a lack of teacher training in digital skills they can be able to connect their knowledge with practice.

There is a methodology that develops digital information competence and leads to the design and implementation of innovative teaching practices. Educational innovation based on evidence methodology (EIBE) is used to support professional educational decisions in scientific evidence (Tejedor, 2007, Ramírez, 2012). Tejedor (2007) points out that in order to innovate in one's own teaching practices, it is necessary to base information on good practices available on the network, in reliable sources of information. Therefore, as indicated by Ramírez (2012), the teacher must demonstrate information search, critical reading and project development and implementation skills in order to put knowledge into practice through research strategies supported by digital competencies. Thus, EIBE includes the design of innovative proposals with the phases of: (1) establishing the object of innovation, (2) seeking information, (3) formulating the project, and the implementation of innovative proposals with the phases of (4) promulgation and evaluation; and (5) diffusion (Sarango-Lapo, Mena y Ramírez-Montoya, 2016).

3. THESIS STATEMENT.

3.1. Problem statement

There seems to be a lack of teacher training in digital skills to be able to connect their knowledge with practice (Badarch, Knyazeva and Lane, 2012; Cook, Smith and Tankersley, 2012; Ertmer and Ottenbreit-Leftwich, 2010 and Weaver, 2007). The EIBE model could be an alternative, since its application demands in the teachers certain informational skills for the design and implementation of innovative teaching proposals.
3.2. Research objectives
The research objective is to investigate the level of perceived domain of informational digital competence after receiving training in the design-oriented EIBE model (phase 1 - 3) and the implementation of innovative proposals (phase 4 and 5).

4. METHODOLOGY.
The research methodology used was exploratory-descriptive (Johnson and Gosling, 2010). This methodology investigates the level of perceived mastery of informational digital competence by teachers after receiving the EIBE course oriented to the design and implementation of innovative teaching practices. The digital competences of information were measured, according to the model proposed by INTEF (2017), they are the ones of navigation and search; evaluation; storage and retrieval of information and added the competence of communication of the information in coherence with the diffusion phase of EIBE. To do this, we used an online questionnaire with likert scale of five response options (no domain, little domain, regular domain, good domain, excellent domain); And a semi-structured interview was also conducted to determine what digital information competencies were necessary to apply during the design and implementation of innovative proposals according to EIBE.

4.1. Sample
A total of 96 teachers participated in the virtual course "Learning Management Models" of a postgraduate program, of which a sample of 39 teachers completed an online questionnaire to measure the level of perceived domain of digital competence in the information area. The virtual course was given by the “Instituto Tecnológico de Monterrey” (ITESM) for four months in 2016.

4.2. Data collection
Data were collected from six questions from an online questionnaire that was applied to teachers who participated in the virtual course. The first three questions relate to competition on "navigation and search for information", the fourth question relates to the competition on "information evaluation", the fifth question has to do with competition "storage and retrieval of information" And the sixth question with the competence of "communication of information ". Other data were collected from the questions of the semi-structured interview to determine what digital information competencies were required in the design and which in the implementation of innovative proposals according to EIBE.
4.3. Analysis of data
At the end of the virtual course the teachers answered the online questionnaire questions and the interview questions. From the questionnaire, six questions were analyzed, adapted from the model proposed by INTEF (2017) of the information area. From the interview the questions analyzed led to know which competencies applied in the design and implementation phases of innovative proposals with EIBE.

5. RESULTS.
The main results indicate the level of mastery perceived by teachers of digital information competence in the design and implementation of innovative proposals with EIBE. The teachers in the virtual course needed to find information that substantiates their proposals of virtual end of course. Table 1 presents the levels of perceived dominance over informational digital competence.

<table>
<thead>
<tr>
<th>Digital informational competences</th>
<th>Question</th>
<th>Domain Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
</tr>
<tr>
<td>Navigation and information search</td>
<td>Browse the Internet</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Use keywords and operators.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Select information based on search purposes and verify your license</td>
<td>0</td>
</tr>
<tr>
<td>Evaluation of information</td>
<td>Critically evaluates the results of information found</td>
<td>0</td>
</tr>
<tr>
<td>Storage and retrieval of information</td>
<td>Stores information on open access sites.</td>
<td>5</td>
</tr>
<tr>
<td>Communication</td>
<td>It transmits</td>
<td>0</td>
</tr>
</tbody>
</table>
As seen in Table 1, the results in the Navigation and information search competition show that between 64.1% and 66.7% of teachers indicated that they have "good command" in Browsing the Internet, using keywords and selecting information depending on the purposes of search ". Followed by a percentage of 12.8% to 20.5% of teachers who are perceived in "regular domain", while in a percentage of 10.3% to 17.9% they are located in "excellent domain", finally in a percentage of 2.6% to 7.7 are perceived with "little dominion".

Regarding the results of the Information Evaluation competency, 66.7% of teachers were in "good domain" regarding to critically evaluate the results of the information found, and only 15.4% of teachers indicated that they are in level Of "excellent mastery", while 17% of teachers are in regular domain.

The results of the information storage competition indicate that only 17.9% of teachers are in "good domain" in terms of storing information on open access sites, while from 12.8% to 41.0% of teachers are located between "no domain" to "regular domain" and only 2.6% is perceived as "excellent domain".

The results of the competition of information communication, 61.5% of teachers are perceived as "good" in terms of transmitting information in written and verbal form using the technologies, in a 17.9% is located in "regular domain", 15.4% are at "excellent domain" level and only 5.1% of teachers are perceived in "little domain".

Table 2, presents the results obtained from the semi-structured interview to five teachers, aimed at determining the competencies that were applied in the design and implementation dimensions of the innovative proposal that includes the phases of the EIBE model.
Table 2: Application of digital information competence in the phases of EIBE

<table>
<thead>
<tr>
<th>implementation</th>
<th>evaluation</th>
<th>Storage and retrieval of information</th>
<th>5</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diffusion</td>
<td>Communication of information</td>
<td>5</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 shows that for the design of proposals in the "theme selection" phase, 100% of the respondents indicated necessary information storage and retrieval skills due to the fact that they handled google drive or dropbox. In contrast to the results of the "innovative proposal formulation", where 100% of teachers demonstrated communication skills, information assessment, information storage and retrieval information, in the meetings held, during selection of the information, supporting the proposal and in the management of technological tools for the elaboration, storage and recovery of the proposal. Likewise, 100% of teachers pointed out the importance of communication and information storage skills for the implementation of the proposal in the phases of enactment and diffusion.

6. IMPLICATIONS/DISCUSSION.

6.1. Design of innovative proposals
The EIBE model leads teachers to the development of digital information competencies in the design of innovative proposals that enhance the processes of teaching learning. The results indicate that the majority of teachers perceived in general to have a "good command" in the digital informative competences of navigation and search of information, of communication; And evaluation of information, necessary to support the selection of the topic and the formulation of the innovative proposal (Tejedor, 2007). What, in coherence with what Ramirez (2012) and Mena, Ramírez y Rodríguez (2017) indicates, the teacher must be able to demonstrate information search, assessment and project development skills in order to put knowledge into practice, supported by research strategies and digital competences. However, it is necessary to strengthen the information storage and retrieval competence, as the results indicate that there is a "regular domain" in most teachers, this may be because they have a superficial knowledge about the management and possibilities of access sites that allows to store and retrieve information individually or in groups, so that their integration or use varies depending on the training they receive (San Nicolas, Fariña and Area, 2012).

6.2. Implementation of innovative proposals
The results indicate that it was indispensable to apply the information communication competence. These competences were perceived at a level of "good mastery", since in the implementation phase of the innovative proposal it was necessary to communicate verbal and written by different technological
means, both in the promulgation and in the diffusion of the results. Taking into account that for their diffusion it was necessary to look for sites where they can publish the results as magazines, congresses, books, panels of experts, etc., which according to Pozuelo (2014) and INTEF (2017) teachers must be prepared to know how to manage and communicate information.

The results generally indicate a good level of perceived mastery of digital information competencies in teachers, so it could be said that for the design and implementation of innovative projects EIBE the appropriate use of technology is required to promote the search, evaluation, storage and diffusion of information (Hepp, Prats and Holgado, 2015). However, it should not be forgotten that the integration of technology in innovation proposals depends very much on the establishment of good training programs (San Nicolas, Fariña and Area, 2012) and those aimed at linking knowledge with practice (Tejedor, 2007 and Ramirez, 2012).

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Teachers’ Digital Skills training by using the Educational Innovation based on Evidence Methodology (EIBE)


Education, Cinema and Science Teacher Education Program: the right to gaze at the gaze of the camera

Valéria Cazetta¹, Celi Rodrigues Chaves Dominguez², Fabiana Curtopassi Pioker-Hara³, and Josely Cubero⁴

¹Universidade de São Paulo - USP
vcazetta@usp.br
²Universidade de São Paulo - USP
celi@usp.br
³Universidade de São Paulo - USP
fpioker@usp.br
⁴Universidade de São Paulo - USP
josely@usp.br

ABSTRACT
This text presents the results of research projects conducted by students of the Science Teacher Training Program at University of São Paulo (USP, Brazil). This project focused on the use of cinematographic language as a vector of subjectification. In order to privilege heterogeneity and procedural creation in the education of the teachers-in-training, some elements on the interface between cinema and education were considered, such as the experience of gazing, (re)framing, editing and producing a short movie. All these can be circumscribed within a dimension of aesthetics, ethics and politics that destabilizes the massification and homogenization foundations of contemporary subjectivities. The work is based on contributions by Foucault, Guattari and Deleuze, regarding the notions of subjectivity and subjectification, as well as by Comolli’s work on cinema. Methodological procedures were guided by the concept of cartography, more as a way of addressing research according to its own contingencies, and less seeking to get to the results. We conclude that the deployment of cinematographic language during the Science Teacher Education Program made it possible for the students to look deeply into public school during their internship program. Through the production of short films, they were able not only to portray a reality of the school where they had carried out their internship, but also to recognize and show the invisible, silenced and neglected topographies of that institution as well. Actualizing these topographies has involved students in a learning process by means of seismic waves: to desire people in their differences, and having their gazes returned, as they direct their geographies to the camera.

KEYWORDS: education, cinema, science teacher education program, philosophies of difference
1. INTRODUCTION
We aimed in this study to investigate the frontier relationships between cinema and teacher training, in the context of the production of the future teachers’ subjectivities during an initial Science Teacher Training Course taught in public university. Our premise was that it is important to raise issues around cinema and its language in the initial phase of teacher training, for two reasons: cinema subjectifies us; and, as a didactic resource, it is instrumental in teaching much content pertinent to the Natural Sciences.

Although cinematographic language constitutes part of the teachers’ production of subjectivity in the context of contemporary visual culture, it is nevertheless disregarded in the scope of the education of their gazes as these teachers perform educational practices. We shall explore both the instrumental deployment of cinema and the creation of spaces for the production of meaning and dialogues regarding the training teachers. We seek to answer two questions: how to deploy cinema’s audiovisual language with teachers in training, in order to have them learn how to handle video cameras, to assemble and dissemble image takes, cut and produce sequence-plans?; how can these teachers in training, grounded on the use of image editing software, change the way they conceive the cinema/Science teaching interface?

2. THEORETICAL FRAMEWORK
In the last 10 years, studies about cinema and the initial stages of teacher training have increased in number: one group regards the research initiatives related to initial teacher training courses, discussing the deployment of cinema in the production of their subjectivities (Gallo, 2014; Fretas, 2015; Leite & Christofoletti, 2015; Marcello & Fischer, 2011); and other group focusses on the importance of cinema’s audiovisual language in the initial stage of teacher training (Miranda & Guimarães, 2015; Fernandes, 2015; Amâncio et al, 2015).

From the first group, we highlight the premises of authors such as Gallo (2014), who advocates in favour of the thought movement that film causes in us, whether or not we like a particular film or its cinematographic typology. “Cinema mobilizes us, affects us, does not leave us apathetic, […] we cannot simply watch one and ignore it. And in this affection, the potencies of thought are mobilized”. (p.19). Fretas (2015) states that the deployment of cinema by students undergoing teacher training allows them the experience of “filmic reception with the screening of films that not only widens the repertoire of both teachers and students, but also that promotes the comprehension of
cinema as an aesthetic construction, a social enunciation and, therefore, source of thought and expression”.

Leite & Christofoletti (2015), in response to the question *why cinema in education?*, answer that, in their research, “art presents itself as an affective place of openness and freedom of expressions and manifestation of subjectivities, because it affects us all, producing sensations differently in each person […] Art (often) is presented in different forms, so as we observe a universe ridden with clichés and previously controlled situations, such as images made for crying, for laughing or for fearing” (p.42).

Marcello e Fischer (2011), as they propose an agenda for research on cinema and teachers’ initial training, they also state that cinema educates, subjectifying us as a language that integrates visual and aesthetic educations, resulting in an education of the gaze. In other words, of a gaze interested in the different ways of seeing “people, social groups, present history” (p.507). According to them, cinema and education research compels us to deal with filmic narratives, contemplating, at least, three dimensions: a) cinema’s audiovisual language grammar; b) the audience to which such narratives are aimed at; c) questions of “philosophical, historical, cultural aesthetic or pedagogical nature, which, as they may be conceived out of films or interventions such as cinema, carry questions about the present time” (p.506).

Authors from the second group state that school, university and cinema are all instances of creation and experimentation, but, additionally, also of reproduction of visual cultures. For Miranda & Guimarães (2015), despite the historical recognition of the use of images in school education, and the production of images in the academic context (though not often critically appraised), it does not follow that the meaning attributed to visual and aesthetic education resides exclusively in the education of the gaze and in the modes of teaching how to look at and interpret images, but, above all, it resides in the understanding of “how the products of visual culture intervene, traverse and affect symbolic constructs that Men elaborate in the knowledge, recognition and understanding of the world” (Miranda; Guimarães, 2015, p.150).

In research by Fernandes (2015) we find statements similar to those uttered by our own students: “there is no class today because we are watching a film”, and “class today is a film”, “film as cool, because they kill time off class”, “usually film is used both in school and in university to kill classroom time” The author elaborates on the importance of widening “the conception that those films, as well as the books, are also elements of learning” (p.100). In other words, we need to give “access to this experience of understanding film as a class and not as entertainment to basic school children and youngsters, and also to teachers-
in-training at university,” (p.100).

Although the access to the new technologies have allowed for the carrying out of audiovisual material such as short or feature films, it has also made clear the need to deal with cinematographic language, in the sense of “promoting the challenging of filmic texts in a non-naive or neuter way, but, instead, to be aware that audiovisual texts are laden with aesthetic and political propositions” (Amâncio et al., 2015, p.30).

3. METHODOLOGY

Our survey focused on the elaboration of short films by teachers in training. We highlight three stages of methodological procedures: cinema’s audiovisual language; the use of cinema as a didactic resource when we exhibited 8 short films and discussed them with the teachers in training, seeking to both widen their film repertoire and to promote the understanding that cinema is an aesthetic, ethical and political construct, and, therefore, a source of thought and expression; and the production of short films by pairs of students, between 5 and 7 minutes long.

In the period between 2011 and 2016, 170 short films were collected and analysed. The short films were produced as part of one of the disciplines of the educational area. The students made the films in the seventh of the eight semesters comprising the Teacher Training courses at the University of São Paulo, demanding a total of 30 classroom hours. The guidelines established by us, were the same to all teachers in training: “You are assigned to do a short film about some situation involving teaching and learning processes”. The analysis we carried out consisted in verifying how the students made use of cinema’s audiovisual language in order to narrate classroom situations; and how the carrying out of short films modified their conceptions of the meanings of teaching and learning.

4. RESULTS

The short films produced by the students are very diverse, revealing how each team solved problems such as: the ban on filming pupils’ faces and some places in school, such as the secretary, the library, the toilets; the subtracted sound of managers’ and teachers’ speech, for some professionals did not authorize the use of the direct sound recordings of their voices. It is very important to stress how valuable the methodological procedures were, because, as we watched and discussed a repertoire of short films, they were able to learn about various ways of editing their own short films, as well as about visibilities
(ways of seeing and of making see) and sayabilities (ways of speaking and making speak).

We highlight two aspects regarding the education of the gaze. First: as they produced the short films, the students confronted their imagetic habits, anchored in image-clichés. The students were challenged to face the transformational possibilities of the recorded and edited images. At the same time as the teachers in training sought a “right” way of positioning their cameras for the recording of their shots, they also took risks in cutting and editing, allowing for experimental scene interactions and unusual compositions as they narrated events in the classroom.

The second aspect, related to the previous one, refers to the scenes’ gestures used in the découpage of a filmic sequence, and the sequence’s “left overs”, which, supposedly, have nothing to do with the plot of the short film being produced. The students were made aware of, in this process of cutting and editing, the potency of audiovisual language, as they were forced to find other ways of making seen some thing or another. After all, textuality, orality, visuality and sonority cross over in the plasticity of this kind of language.

In the analysis of the short films we highlighted three approaches in the way the school as an institution and the teachers’ activity were conceived:

- a group of 34 students formulated criticism directed at the schools’ reality (3.1);
- the second group, constituted by 36 students, focused on the understanding of how the schools as institutions functioned in their various configurations. They interviewed teachers, pupils, managers and school employees (3.2);
- a group of 101 students rendered evident in their filmic narratives the relationship between audio visual language and learning, which, according to them, has contributed with to their training as teachers (3.3).

4.1 The production of the short film as criticism of the schools’ “reality”

The range of students who took up this narrative is very diverse: those who categorically stated that they do not want to take up a teaching career, due to pay levels and the schools’ (public and private) working conditions; those postulating changes in the teachers’ didactic methods; and absence of managers engaged in the schools’ administration.

4.2 Knowing the schools’ “territories”

In this approach, the students’ filmic narrative pointed at the need for knowing the school as an institution from the many subjects that constitute it, in the sense of understanding how each person acts within the school, ranging from teaching staff to pupils, inspectors, catering personnel and managers. The
knowledge of these micro-relationships, often tacit, configures important strategy for the establishment of bonds of belonging with the school and, in most cases, as the very condition of teaching work.

4.3 Creation of teaching and learning spaces

In this approach, students highlighted situations where they witnessed successful learning contexts, such as: lesson planning that takes into consideration the importance of mobilising a wide repertoire of languages, depending on the subject to be approached in the classroom; knowledge of how to mediate contents, for the same subject can be made interesting or uninteresting, depending on how the translation of the contents is carried out, understanding translation as a process of creation, (Corazza, 2016); classroom management and organisation of school time; understanding cinema’s audiovisual language as a way of raising issues about the didactic elements in teaching and learning situations; and, finally, the deployment of films, be it to teach the specific content of school disciplines, be it to kick-off usually polemical dialogues around issues such as teenage pregnancy, sexuality and gender.

5. IMPLICATIONS/DISCUSSION

The students who made the short films are in the last two semesters of the Teacher Training Course. This in part explains the perceived complexity of the professional teachers’ work as formulated in most of the short films produced, when the videos bring our attention to details of the schools’ dynamics that would otherwise go unnoticed. What does audiovisual language implies when the issue is teacher training and the production of subjectivities? It implies attention, a state of mind through which both subject and object are at stake (Masschelein, 2008). Let’s elaborate. In the formulation of scripts for the short films and the recording of images, we have stimulated the teachers in training to pay attention to the routines both of teaching work and of the school as a whole. Why? That which has become filmic narrative, seeking to critically approach the school’s “reality” (item 3.1), is nothing but discursive production, traversed by a series of beliefs about what the teacher’s job at school should be.

The teachers in training, as they experience the filmic narrative mode, access other languages and other ways of being in school, beyond the condition of interns – seen, often, by the school community, as judges of the teachers’ educational practices. Item 3.2 has indicated that the task of making the short films has produced in the teachers in training a position of listening to the Other, differently from the interviews previously carried out, not to mention
the learning established with the interviewed subjects, that is, the schools’ “territories”.

As we discussed with the students the aesthetic and political qualities of filmic narrative, qualities that they so much strived to give to their filmic shots, we have identified that it rested less on the changes in camera position and more on how the students later made use of the gestures and cuts in the editing of video sequences. The education the gaze does not mean teach, but to lead out, to reach out. Therefore, to educate the gaze does not mean to acquire a critical vision, but, instead, it means placing a wager on images of the improbable and paying attention to intensive forces. What we call *images of the improbable* (items 3.3 and 3.4) are those formed in a movement of radical anthropophagous thinking, by means of which the figurative character of the image-cliché is erased, at the same time as the image of the improbable accords with the image-cliché, a kind of burn that is not of the order of the new, but, instead, of the unexpected and of the improbable.

The cinema that educates is one that “makes one think, not only cinema itself, but a wide variation of experiences and issues that it places under focus” (Xavier, 2008, p.15) and, therefore, it can provoke thought and allow for filmic narratives that touch upon the work of teachers and the school contexts such as translation, more in the sense of creation (Corazza, 2011) than of the subordination to knowledge produced in the scope of university and research institutes.

6. CONCLUSIONS

We advocate for an education of the gaze where the teachers in training are able to perform successful educational practices in the interface between cinema’s audiovisual language and situations of teaching and learning. Audiovisual is more than the combination of sound and image. It is a language that “speaks to the irrational and to emotion, and places the spectator in a world of sensations a lot more intuitive and interactive than the written language” (Carvalhosa, 2012, p.13).

The deployment of audiovisual language in Science teacher’s training took place with the aim of allowing the students to learn in alternative ways about the school’s context, seeking to understand, simultaneously, its specificity and complexity. We believe that, in teacher training, it is crucial to de-naturalise the ready-made discourses attached to the present-day roles of the teacher and of school. The filmic narratives of most of the short films revealed a defence of school and of quality teacher training, one concerned with the situations of teaching and learning. The teachers in training have identified that, beyond issues of pay and of working conditions, the teacher also needs to decide if she
or he really wants to take up responsibility for the new and coming generations.

ACKNOWLEDGEMENTS
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Use of Virtual Labs in Health Sciences Degrees

Juan José Serrano-Pérez, Isabel García-Arnandis, Nicla Flacco, Lorena González, Ana Pellín-Carcelén, Carlos Romá-Mateo, Gonzalo Pérez-López, and Alida Taberner-Cortés

1Departamento de Ciencias Biomédicas, Universidad Europea de Valencia, C/ General Elío, 8, ES-46010, Valencia (Spain)
juanjose.serrano@universidadeuropea.es

2Departamento de Ciencias Biomédicas, Universidad Europea de Valencia, C/ General Elío, 8, ES-46010, Valencia (Spain)
isabel.garcia2@universidadeuropea.es

3Departamento de Ciencias Biomédicas, Universidad Europea de Valencia, C/ General Elío, 8, ES-46010, Valencia (Spain)
nicla.flacco@universidadeuropea.es

4Departamento de Ciencias Biomédicas, Universidad Europea de Valencia, C/ General Elío, 8, ES-46010, Valencia (Spain)
lorena.gonzalez@universidadeuropea.es

5Departamento de Ciencias Biomédicas, Universidad Europea de Valencia, C/ General Elío, 8, ES-46010, Valencia (Spain)
ana.pellin@universidadeuropea.es

6Departamento de Ciencias Biomédicas, Universidad Europea de Valencia, C/ General Elío, 8, ES-46010, Valencia (Spain)
carlos.roma@universidadeuropea.es

7Departamento de Ciencias Biomédicas, Universidad Europea de Valencia, C/ General Elío, 8, ES-46010, Valencia (Spain)
gonzalo.perez@universidadeuropea.es

8Departamento de Ciencias Biomédicas, Universidad Europea de Valencia, C/ General Elío, 8, ES-46010, Valencia (Spain)
alidamaria.taberner@universidadeuropea.es

ABSTRACT
Internet-based instruction is currently a commonplace practice in higher education. Not only does this trend open the possibility of blended learning, but it also allows to take into account different talents as well as different ways of learning. To this end, virtual labs, which encompass interactive simulations and animations, are excellent tools to develop diverse key competences and to favour self-assessment and lifelong learning.
Nowadays there is an alarming decline in young people’s interest for science studies. This problem may well be especially controversial in students enrolled
in Health Sciences degrees, since they consider Natural Science subjects have little to do with their future professional practice. This fact, together with an unsuitable background, may well lead to a lack of motivation and academic failure.

In this regard, we will analyse the performance of ca. 400 pupils enrolled at our university, who will be divided into different groups to carry out either virtual or traditional experiments. Specifically, we will carry statistical analyses of the mean scores, level of motivation and satisfaction, acquired competences, risk of failing and the effect size comparing the use of either virtual labs or hands-on labs.

As a result of our intervention, an increase in motivation is expected, as well as in scores, level of understanding and appreciation of natural science subjects. Besides, we expect to verify that the use of only virtual labs is by no means detrimental to their instruction.

KEYWORDS: laboratory, ICT, simulation, interactivity.

1. INTRODUCTION

Nowadays, it is common knowledge that basic natural science subjects are not very popular among youngsters. However, subjects such as physics, chemistry and biology are actually the base of many other disciplines, e.g. health sciences. We believe that virtual labs are excellent tools to motivate students as well as to organize innovative, effective, sustainable and replicable learning activities.

2. THEORETICAL FRAMEWORK

In the Information Era, computers connected to the World Wide Web are ubiquitous in educational institutions, and many learning tools have been developed to support teachers and pupils throughout the learning process (A. Franco, Beléndez, & Ablanque, 2013; Sanmartí & Marchán, 2015). This paradigm shift is based on the philosophy of education known as constructivism (Bangert, 2004; Coll et al., 2007; Chickering & Gamson, 1989; Pozo & Gómez, 2006), which seeks to foster active and meaningful learning (Freeman et al., 2014; Oliver-Hoyo, Alconchel, & Pinto, 2012; Pinto, Escudero, & Martín, 2008), and this trend is especially important in the way science subjects should be taught (Kovac, 1999; McDermott, 1993; Oliver-Hoyo, et al., 2012; Pinto, 2005; Pinto, et al., 2008; Pozo & Gómez, 2006; Rocard et al., 2007; Sanmartí, 2009; Sanmartí & Marchán, 2015; Spencer, 1999; Torres & Correia, 2007). In this process, information and communications technologies (ICTs) play a key role in order to take into account multiple learning styles as well as to pursue the ability of “learning to learn” (Cook, Kennedy, & McGuire, 2013; Linn, 2002; Livingstone, 2012; Paniagua, 2001). Basically, in a given activity, the more the student is involved, the more the
student learns (Herreid, 2012; Oliver-Hoyo, et al., 2012; Pinto, et al., 2008; Torres & Correia, 2007).

In this regard, virtual labs are engaging and interactive platforms for meeting diversity needs, including different learning paces, backgrounds and motivations (Alejandro Alfonso, 2004; Coll, et al., 2007; Finkelstein, Adams, Perkins, & Wieman, 2006; A. Franco, 2003; A. Franco, et al., 2013; Moore, Chamberlain, Parson, & Perkins, 2014; Pontes, Martínez, & Climent, 2001). The use of virtual labs to teach science within a constructivist model of teaching and learning is currently in vogue due to a host of different reasons (Amaya Franky, 2009; A. Franco, et al., 2013; Infante Jiménez, 2014; Jerez & Gómez-Bravo, 2011; Monge Nájera & Méndez Estrada, 2012; Pontes, et al., 2001; Tüysüz, 2010): they foster teamwork, are engaging and motivating, mean lower costs, are useful to enhance creativity, allow the students to repeat the activities as often as necessary and at their own pace, favour self-assessment and lifelong learning, and allow the teacher to carry out experiments just after the explanation of a concept in the same classroom.

In the specific case of students enrolled in Health Sciences degrees, the use of virtual labs may well be appropriate: not only does these tools allow teachers to respond to a wide diversity of students, but virtual labs also allow students to improve their digital competence, which is a cornerstone to answer the highest demands of professional and personal life in the 21st Century. Furthermore, several studies point out that virtual lab tools in biology are as effective as traditional labs when evaluated by student performance in examinations (Lewis, 2014), and students perceive the virtual labs in a positive way (Stuckey-Mickell, 2007). According to other studies, students who used computer simulations performed even better on conceptual questions in physics and even developed a greater facility at manipulating real components (Finkelstein et al., 2005). However, we also believe that a great pedagogical synergy may be gained by integrating real and virtual laboratory activities, as it is described elsewhere (Kocijancic & O'Sullivan, 2004).

We are undertaking a project to study the impact of virtual labs in students enrolled in Health Sciences, in order to analyse their scores, level of motivation and satisfaction, subject-matter knowledge and appreciation of basic science subjects.

3. METHODOLOGY

3.1. Participants

The participants in this study are teachers and pupils of our university. On the one hand, the teachers span many realms (biology, pharmacy, biochemistry, chemistry, dentistry...) and they are trained to teach more than one subject. On the other hand, the sample will consist of ca. 400 pupils enrolled in basic
science subjects in Health Sciences degrees (Physiotherapy, Dentistry and Nursing): biophysics, biochemistry, biology, physiology, microbiology and anatomy.

In the literature there are some studies (Bowen, 2000; Dinan & Frydrychowski, 1995; Freeman, et al., 2014; Hake, 1998; Michael, 2006; Prince, 2004) with samples ranging from only a few tens to hundreds of pupils, in which the student performance in STEM subjects (Science, Technology, Engineering and Mathematics) is jointly analysed. Therefore we consider that the number of students is large enough to get an unbiased answer to all of our research questions.

3.2. Materials

Several on-line virtual labs will be used, mainly freeware, encompassing different areas of knowledge, such as:

- Educaplus (http://www.educaplus.org)
- Phet Interactive Simulations (https://phet.colorado.edu)
- Blog Laboratorio Virtual (http://labovirtual.blogspot.com.es)
- Virtual Amrita Labs (http://vlab.amrita.edu/?sub=3&brch=73)
- Learn Genetics (http://learn.genetics.utah.edu/content/labs/)
- Biomodel (http://biomodel.uah.es/lab/inicio.htm)
- Fisquiweb(http://web.educastur.princast.es/proyectos/fisquiweb/labradorio.htm)

Additionally, suitable laboratory guides will be designed for both virtual and hands-on labs.

3.3. Procedures

In each subject, there will be different groups:

- Group A: they will carry out virtual experiments only.
- Group B: they will carry out traditional experiments only.
- Group C: they will carry out some virtual experiments and some hands-on ones.

Together with the analysis of the academic results, all of these students will be given questionnaires to evaluate their motivation towards natural science subjects, as well as their level of satisfaction and interest.
3.4. Data analysis

We will assess whether the use of virtual labs boosts examinations scores, lowers failure rates and increases motivation towards natural science subjects. To this end, the most appropriate statistical tests (Bluman, 2012; Brase & Brase, 2007; Lindsey, 2004; McCrum-Gardner, 2008; Muijs, 2004; Spiegel, Schiller, & Srinivasan, 2001) to compare means, variances and proportions will be selected. Particularly, we are interested in the following analyses:

1) To compare the mean scores of Group A, Group B, and Group C.
2) To compare the differences in the degree of motivation, acquired competences and understanding of the subject with respect to the use of either virtual labs or hands-on labs.
3) To compute and analyse the risk of failing a specific subject.
4) To obtain and interpret the effect size (Freeman, et al., 2014; Ialongo, 2016; Nakagawa & Cuthill, 2007), i.e. whether the use of virtual labs is meaningful in the improvement of the learning process.

What is more, we will study the variability of our results to identify common trends in all class sizes, course types and instructors.

4. RESULTS

Since this project is being implemented right now, we are currently gathering useful data during academic years 16/17 and 17/18. Specifically, before the end of year 16/17 we will have data from several groups of the following subjects: biophysics (physiotherapy), and biochemistry, microbiology and anatomy&physiology II (dentistry). Next year we will focus on the following subjects: biophysics, biology (physiotherapy); biology, microbiology, anatomy&physiology I and II, biochemistry (dentistry); biochemistry, physiology (nursing).

In the questionnaires, we will analyse the answers related to the student’s view of some aspects related to different basic sciences before and after completing the labs (more specifically, at the beginning of the course and at the end of the course), namely:

- Level of knowledge.
- Level of satisfaction.
- Importance of basic sciences in your degree.
- Importance of basic sciences in your future professional practice.
In addition, after completing the labs, new questions related to these experimental demonstrations will be provided in order to assess the following items after carrying out virtual labs, traditional labs or both:

- Level of satisfaction and motivation towards basic science subjects.
- Academic performance in basic science subjects.
- Level of satisfaction towards experimental demonstrations.
- Assessment of different aspects of experimental demonstrations: absence or not of experimental errors, ease in team work, risks, application of what they have learnt in class in “ideal” and “theoretical” situations, scheduling and entrepreneurship.

5. IMPLICATIONS/DISCUSSION
The implementation of the study hitherto can be regarded as a proof of concept. However, we can anticipate that those pupils which carry out both types of lab demonstrations may well acquire contents and skills in a better way.

In this regard, the possibility of carrying out the same experiment in the lab as well as at home via the Internet may allow the students to develop different competencies in each case. For instance, virtual experiments are useful because students can get the expected “ideal” result without experimental errors, and then they can relate directly the experiment to the theory; on the other hand, traditional experiments are useful to be aware of the experimental errors as well as the approximations which are no longer valid in real-life situations.

6. CONCLUSIONS
The following hypotheses are going to be considered after analysing the results that we are gathering at this moment:

- We expect a higher motivation and an increase in the appreciation of basic science subjects among students who take part in virtual lab activities.
- A higher degree of acquisition of key competences for lifelong learning is expected among students who use virtual labs.
- Despite the fact that it may be better to combine both kinds of labs, we expect that the use of only virtual labs may well be equally as effective as traditional labs in increasing student knowledge and understanding.
- We expect that the inherent flexibility in virtual lab experiments is going to be highly appreciated by students.
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Can mobile devices help students improve their academic results?

Laura Cabeza García¹, Daniel Alonso Martínez², Nuria González Álvarez³, and José Luis de Godos Díez⁴

¹University of Leon, Spain  
laura.cabeza@unileon.es  
²University of Leon, Spain  
dalom@unileon.es  
³University of Leon, Spain  
nuria.gonzalez@unileon.es  
⁴University of Leon, Spain  
jlgodd@unileon.es

ABSTRACT
Nowadays, students are suffering from a decreased motivation which entails that implementation of new educational techniques is required. Due to the advantages of Information and Communication Technologies and in order to solve this problem, using a sample of Spanish undergraduate students we have developed two initiatives. In parallel with theoretical and practical classes, teachers propose anonymous surveys to be completed by students through their mobile computing devices as well as questionnaires whose results are incorporated in the course’ assessment criteria.

The degree of “success of this teaching initiative” is measured as follows. Firstly, the number of students who participated in both initiatives. Also, for the surveys, the percentage of students who chose the right answer was taken into account. Regarding the questionnaires, we compare the average value of the students' final mark in the exams (and then with the mark of the four questionnaires undertaken) between students of the current academic course and those of the previous one. Besides, in both academic courses the pair wise correlations between the average mark of the questionnaires and in the exams are calculated. The results suggest that in both degree courses the average marks of questionnaires have significantly increased. Furthermore, positive and significant correlations between questionnaires and exams' average marks were found in both degree courses for both academic years. Finally, by means of an anonymous questionnaire it was possible to find out the students’ opinion about these initiatives. Drawing upon this information, improvements that could be included into future courses are shown.

KEYWORDS: ITC, smartphones, under-graduated students, academic performance.
1. INTRODUCTION

In recent years, a drop in motivation has been detected, partly due to the fact the today’s educational systems are not adapting to students’ changing needs (Visser and Visser-Valfrey, 2008). The appearance of information and communication technologies (ICT) has substantially changed knowledge acquisition, communication and interaction by students (Stromquist, 2009). In that sense, ICT can help increase students’ motivation to learn (Siddiq et al., 2016). This is because ICTs transmit information in different ways (Marqués-Graells, 2012) and promote teaching styles that give students freedom and choice (Hernández-Martínez et al., 2015). For example, students use ITC to participate and express what they feel more freely. ICTs can be seen as a useful tool for designing, planning and monitoring the teaching and learning process (Santos et al., 2009). They make possible new learning practices (García-Valcárcel and Tejedor, 2011), support face-to-face teaching and provide better-quality teaching content (EU law and publications, 2013). In particular, the use of smartphones in teaching can have a positive effect on their motivation to learn (González-Fernández and Salcines-Talledo, 2015).

Based on these ideas, an initiative was set up comprising surveys and questionnaires to be completed by using these mobile devices. The purpose was to encourage participation and independent work by students, as well as interaction with their teachers. ICT’s provides an instrument to facilitate participation and independent work of students because they can answer questions in class or at home. Teachers can also know exactly if students understand their explanations. In addition, the use of these devices allows them to obtain feedback regarding their doubts or mistakes, thus helping improve students' learning process and consequently their motivation and academic performance.

2. THEORETICAL FRAMEWORK

Using smartphones in teaching processes as personal devices associated with students’ daily reality can have a positive effect on their extrinsic motivation to learn (González-Fernández and Salcines-Talledo, 2015). A smartphone can therefore be considered an important element for linking learning in different matters and can help students to keep up their extrinsic motivation in different contexts (Tabuenca et al., 2013). Specifically, at higher education level, practically all students possess a multifunctional device of this sort (Dixit et al., 2011) although many of them are not aware of the phone’s potential for improving or reinforcing learning (Woodcock et al., 2012). The fact that mobile devices like smartphones are owned by their users facilitates adaptation and helps develop individual competencies through their independent work
CAN MOBILE DEVICES HELP STUDENTS IMPROVE THEIR ACADEMIC RESULTS?

(Sevillano and Vázquez-Cano, 2015). The inclusion of smartphones in the teaching and learning process has great educational potential (Akçayır and Akçayır, 2017; González-Fernández and Salcines-Talledo, 2015), especially considering that these devices are more flexible than the desk ICTs associated with traditional use of IT in education, because students take these devices with them all time and can use them everywhere (Woodcock et al., 2012).

In addition, extrinsic motivation has a significant influence on learning by students (Cerezo and Casanova, 2004). So if students’ extrinsic motivation is increased, they may become more receptive and adopt a more positive attitude towards the academic tasks set by the teacher, paying greater attention to instructions, working more constantly and being more involved in learning (Aguaded and Tirado, 2010). As a result, they will also interact more in the teaching and learning process, achieving a better educational performance (Castaño et al., 2015). It has been suggested that smartphones have been used in educational activities to access course contents, acquire information related to students’ performance, and to encourage discussion and sharing between students and teachers (Cochrane, 2010). Thus, these electronic devices can favour collaborative work in the classroom.

In this regard, the purpose of this study was to investigate whether and up to what extent mobile devices can help students increase their extrinsic motivation and as a result improve their academic results.

3. METHODOLOGY.

3.1. Sample

The initiative was adopted by 98 students registered during this academic year (2016/2017) on the subject “Corporate Strategy” in the first term of the 4th year of a Degree in Business Administration. The students were divided into two groups: morning (36 students) and evening (62 students). Another first-term subject with similar content was also considered, namely “Strategic Management” from the 3rd year of the Degree in Economics (with a total of 37 students in 2016/2017). A total of eight topics were taught in both subjects. The choice of these two subjects focusing on business strategy was based on the fact that the teachers involved in this initiative form part of a Strategy Teaching Research Group.

The initiative consisted mainly of surveys and questionnaires given via ICTs, more specifically, mobile devices such as smartphones, tablets, etc. These devices belong to the students. However, in cases in which students did not possess such a device, a Faculty computer was lent to them. The activity took place as follows. The teachers of the subjects, prior to the start of the academic year and in parallel with theoretical and practical classes, drew up a set of
questions (multiple-choice) on the subjects taught. After completing the questions, the next step was to set up the following activities on the “Moodle” platform.

### 3.2. Initiatives

The first activity included surveys, for which mobile devices were required to be used during classes. This allowed teachers to pose specific questions (three or four per survey and, in general, each with four possible answers). The aim was to test whether students were following and assimilating the knowledge imparted during classes, while also improving their participation and interaction. So students answered the questions on their mobile devices and obtained instant feedback with any necessary clarification from the teacher. Teachers were thus able to check automatically if their explanations on the subject had been sufficient or if greater attention was required. The surveys were available for a limited period of time during the class so could only be answered by students who attended. They were anonymous. Since this was a pilot test, participation and response to the questions asked in class were not included in evaluation of the subject, although this would be possible in the future. For the “Corporate Strategy” subject, a total of 10 surveys were proposed (two for each of the two first topics and one for the others). For the “Strategic Management” subject, 14 surveys were proposed, two per topic except topics 1 and 7, for which only one was proposed (see Appendix 1).

In the second activity, the teachers placed a questionnaire [the functioning of a survey and a questionnaire is similar: answering multiple choice questions with only one possible solution. The main differences are that the first ones are shorter, kept anonymous and consequently their mark is not included in the final course assessment] on the “Moodle” virtual platform for every two topics. The questionnaires, which covered the content of two topics with a total of 20 questions and four possible answers, were given when the second of the two topics was finished. Students had a maximum of 20 minutes to fill in the questionnaire in the classroom in a day that has been previously arranged (in general terms, a week later since the teacher finished its theoretical classes of the corresponding topics). Students obtained instant feedback, indicating the number of right answers and mistakes in each case. This methodology consolidated the knowledge acquired by students during the subject being the current academic course (2016/2017) the first one in which the average mark of the four questionnaires were included in the subject final mark.

### 3.3. Method

The degree of “success” of this experiment was measured in several ways. Firstly, the number of students who participated in both initiatives over the
CAN MOBILE DEVICES HELP STUDENTS IMPROVE THEIR ACADEMIC RESULTS?

total number of students enrolled. Also, for the surveys, the percentage of students who had marked the right answer was taken into account and, for the questionnaires, how many students participated in this part of the initiative and the average mark obtained. Secondly, since we have collected data during the last two academic years (we have already started these initiatives in the 2015/2016 academic course), we tried to compare the performance of different groups belonging to the same degree along with the time of our initiatives. For that purpose, the first action we carried out was to check if groups from 2016/17 academic year were comparable to groups from 2015/16. In this sense, we controlled for significant differences within students in terms of gender and average mark in their degree. Thus, we could observe that classes from the Degree in Economics and from the Morning group of the Degree in Business Administration were comparable. However, significant statistical differences in the average mark were found in the Business Administration evening group between the two academic courses. For this reason and in order to avoid biases we have not considered this last group in the comparisons. Thus, for these comparable groups we analysed a possible link between students’ participation in our initiative and their academic performance comparing the average questionnaires mark between the students from 2015/2016 and 2016/2017 academic courses, and whether in each academic course there was a statistical correlation between the questionnaires mark and the exams mark. Finally, by means of an anonymous questionnaire passed to students on the day of the final exam, it was possible to find out their opinion and if our initiatives have already increased their extrinsic motivation and what improvements are needed in our initiatives (see Appendix 2).

4. RESULTS.

Participation in the surveys was greater among the Business Administration students, who also had a slightly higher average percentage of correct answers (see Appendix 1). Regarding the questionnaires (Tables 1 and 2), and when comparing the degree courses, in general, there was greater participation in this initiative among the Business Administration students in the evening (92.7%), followed by the group of Economics students (90.5%) and finally the morning group of Business Administration (82.6%) [as in the Business degree we have around 100 students each academic course in order to facilitate teaching and case resolution they are divided into two groups according to the first letter of their surname. Each student makes the test in its group during a class. The tests have the same questions for all the students but it is no easy to have the questions in advance because each test has 20 questions with 4 possible answers (too many questions and answers). Besides, the group who first make
the test is not the same in all the cases (sometimes we start the test in the morning group and others in the evening group). Overall, the better performance of one group can be explained by the students' abilities in each group). In addition, regarding the average mark obtained in each questionnaire, similarities were found between the students on both groups of Business Administration (7.1 and 7.7, respectively), being these marks a bit higher in comparison with students that belong to the Economics course (5.5).

<table>
<thead>
<tr>
<th>Morning group</th>
<th></th>
<th>Evening group</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Answers</td>
<td>% Students</td>
<td>Average mark</td>
<td>Answers</td>
</tr>
<tr>
<td>Q.1</td>
<td>30</td>
<td>83.3</td>
<td>6.3</td>
</tr>
<tr>
<td>Q.2</td>
<td>29</td>
<td>80.5</td>
<td>7</td>
</tr>
<tr>
<td>Q.3</td>
<td>31</td>
<td>86.11</td>
<td>7.2</td>
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<tr>
<td>Q.4</td>
<td>29</td>
<td>80.5</td>
<td>8.1</td>
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<tr>
<td>Mean</td>
<td>29.7</td>
<td>82.6</td>
<td>7.1</td>
</tr>
</tbody>
</table>

Table 1: Questionnaires: Main results (Degree in Business Administration)

<table>
<thead>
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<th>Questionnaire</th>
<th>Answers</th>
<th>% Students</th>
<th>Average mark</th>
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<tr>
<td>Q.1</td>
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<td>94.6</td>
<td>6.5</td>
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<tr>
<td>Q.2</td>
<td>32</td>
<td>86.5</td>
<td>4.7</td>
</tr>
<tr>
<td>Q.3</td>
<td>33</td>
<td>89.2</td>
<td>5.2</td>
</tr>
<tr>
<td>Q.4</td>
<td>34</td>
<td>91.9</td>
<td>5.8</td>
</tr>
<tr>
<td>Mean</td>
<td>33.5</td>
<td>90.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Table 2: Questionnaires: Main results (Degree in Economics)

Besides, as it can be seen in Table 3, we found that in both degree courses the average marks of questionnaires have significantly increased. In these cases the number of students considered in each group is lower since international students have not been considered because we have no previous information about them (they come just for a semester or an academic year). Furthermore, another relevant finding related to questionnaires is that, for both degree courses and academic years considered, positive and significant correlations between questionnaires and exams average marks have been found, being the coefficients higher for 2016/17 academic year groups with respect to 2015/16 groups for both degree courses.
CAN MOBILE DEVICES HELP STUDENTS IMPROVE THEIR ACADEMIC RESULTS?

<table>
<thead>
<tr>
<th></th>
<th>Degree in Business Administration (Morning group)</th>
<th>Degree in Economics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2016/17</td>
<td>2015/16</td>
</tr>
<tr>
<td>N</td>
<td>35</td>
<td>42</td>
</tr>
<tr>
<td>Average mark</td>
<td>6.7</td>
<td>3.4</td>
</tr>
<tr>
<td>Questionnaires</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mann-Whitney U</td>
<td>173.0**</td>
<td></td>
</tr>
<tr>
<td>Correlation</td>
<td>.48**</td>
<td>.45**</td>
</tr>
<tr>
<td>questionnaires-exams</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Intertemporal comparison: 2016/17 vs. 2015/16 groups

Finally, regarding the results of the questionnaire given on the day of the exam, for both degree courses, a significant percentage of students stated that the fact that they had participated in this initiative had increased their interest on the subject, had been useful for their training and that they would like other teachers to adopt similar initiatives. The percentages were higher in all cases for the Economics students. This may explain why 23% of Business Administration students pointed to the need to introduce improvements as opposed to 17% of students on the other course. Among the measures suggested, increasing online activities, including more business cases in the questionnaires, and increasing the weight of this items on the final mark could be noted. Irrespective of the degree course, it seems that students from both courses (60% on Business Administration and 62% on Economics) considered it necessary to include participation in surveys as part of the final mark for the subject. On the same line, the 95% of the students in both degrees consider as a good idea the inclusion of questionnaires as a part of the final mark. The students in both degrees mentioned that they have participated in the questionnaires in order to complement their own training. Besides, the students agree with the content, structure and the time to fill the questionnaires. Moreover, most of them argue that they studied day a day in order to pass all the initiatives proposed, and they invested less time to prepare their final exam.

5. IMPLICATIONS

In the light of the results obtained, the initiative proposed could be adopted in other subjects, adapting them in line with the suggestions made in order to increase students’ motivation and keep it up throughout the academic year. Due to the positive assessment regarding our initiative made by our students, more attention should be paid to these devices in teaching as they seem to increase students’ motivation and final marks.
6. CONCLUSIONS

In general, the initiative adopted during the term based on the use of ICTs in the teaching and learning process was well received by students from both degree courses. More specifically, according to results of the anonymous questionnaires undertaken on the day of the exam, the classroom surveys (1) increased students’ extrinsic motivation and (2) improved interaction with their teacher, to the extent that theoretical explanations, traditionally conceived as one-way teaching, were complemented with students’ comments and reflections when sharing their answers with the whole group.

With regard to the questionnaires, following the general recommendation from students of the 2015/16 year, this academic course they were included in the final mark for the subjects. Thus, we have observed a generally positive pattern of students’ average marks for both degrees, so that it seems that being familiar with this assessment technique may encourage students to get more involved with the course. Moreover, considering comparable groups of students from different academic years, being the only difference the fact that questionnaires are part of the courses’ final mark in 2016/17, higher average marks of questionnaires and a stronger correlation between the questionnaires and exams’ average marks can be observed. This circumstance may reflect that questionnaires are a positive tool since they help progress learning of the courses’ contents. They help study the subject day-to-day in a more continuous way along the semester.

Although our results are important, beyond the anonymous questionnaires undertaken on the day of the exam, it could have been interesting to apply another type of measurement tool in order to capture students’ extrinsic and/or intrinsic motivation, maybe by using quantitative close-ended questions. Moreover, although this type of initiative proved to be welcome in the subjects in which it was adopted it is necessary to improve both surveys and questionnaires. For example, incorporating a large number of short practical cases in the questionnaires, more online activities and whether it is necessary or not to incorporate the surveys into the final assessment are the main issues we have to reflect on. Finally, considering students with other profile (not only from business) can be adequate in terms of generalisation.

REFERENCES


**APPENDIX 1**

<table>
<thead>
<tr>
<th></th>
<th>Morning group</th>
<th>Evening group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>36</td>
<td>62</td>
</tr>
<tr>
<td>Answers % Students</td>
<td>% Right Answers</td>
<td>Answers % Students</td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Morning group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students: 36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Answers</td>
<td>% Students</td>
<td>% Right Answers</td>
</tr>
<tr>
<td>Evening group</td>
<td></td>
<td></td>
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<tr>
<td>Students: 62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Answers</td>
<td>% Students</td>
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</table>
Can mobile devices help students improve their academic results?

<table>
<thead>
<tr>
<th>S.1</th>
<th>34</th>
<th>94.4</th>
<th>77.9</th>
<th>34</th>
<th>54.8</th>
<th>70.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.1.2</td>
<td>36</td>
<td>100</td>
<td>59.0</td>
<td>35</td>
<td>56.5</td>
<td>47.9</td>
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<tr>
<td>S.2.1</td>
<td>35</td>
<td>97.2</td>
<td>50.5</td>
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<td>67.7</td>
<td>63.5</td>
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<td>S.2.2</td>
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<td>97.2</td>
<td>69.5</td>
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<td>66.1</td>
<td>67.5</td>
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<tr>
<td>S.3</td>
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<td>75.0</td>
<td>82.7</td>
<td>42</td>
<td>67.7</td>
<td>81.7</td>
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<tr>
<td>S.4</td>
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<td>91.1</td>
<td>40</td>
<td>64.5</td>
<td>81.7</td>
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<tr>
<td>S.5</td>
<td>36</td>
<td>100</td>
<td>73.5</td>
<td>36</td>
<td>58.1</td>
<td>62.0</td>
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<tr>
<td>S.6</td>
<td>31</td>
<td>86.1</td>
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<td>S.7</td>
<td>16</td>
<td>44.4</td>
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<tr>
<td>S.8</td>
<td>18</td>
<td>50.0</td>
<td>66.7</td>
<td>20</td>
<td>32.3</td>
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<tr>
<td>Mean</td>
<td>30</td>
<td>82.8</td>
<td>74.8</td>
<td>34</td>
<td>61.8</td>
<td>70.2</td>
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</table>

Table 1: Surveys: Main results (Degree in Business Administration)

<table>
<thead>
<tr>
<th>Students: 37</th>
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<tbody>
<tr>
<td><strong>Answers</strong></td>
</tr>
<tr>
<td>S.1</td>
</tr>
<tr>
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</tr>
<tr>
<td>S.2.2</td>
</tr>
<tr>
<td>S.3.1</td>
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<td>S.6.2</td>
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<tr>
<td>S.7.1</td>
</tr>
<tr>
<td>S.8.1</td>
</tr>
<tr>
<td>S.8.2</td>
</tr>
<tr>
<td>Mean</td>
</tr>
</tbody>
</table>

Table 2: Surveys: Main results (Degree in Economics)
APPENDIX 2

☐ Male ☐ Female

1. Have you ever participated on the online questionnaires proposed by the teacher as part of the course's assessment system?
   Yes ☐ No ☐

2. Have you ever participated on the surveys proposed by the teacher as a classroom activity?
   Yes ☐ No ☐

3. Did the fact of having participated on questionnaires and/or surveys increase your interest on the subject?
   ☐ Yes ☐ No
   ¿Why? ……………………………………………………………………………………….

4. Do you consider that participating on this initiative has been useful for your education?
   ☐ No ☐ Yes ¿Why?
   ……………………………………………………………………………………………………….

5. Do you think some improvements or changes should be carried out?
   ☐ No ☐ Yes ¿Which ones?
   ………………………………………………………………………………………………………..

6. Would you like other teachers to develop this sort of initiatives one within their own courses?
   ☐ Yes ☐ No

7. What do you think about questionnaires’ contents?
   ☐ They are adequate
   ☐ They are not suitable
CAN MOBILE DEVICES HELP STUDENTS IMPROVE THEIR ACADEMIC RESULTS?

☐ They can be improved  In this case, ¿what would you change?

8. What do you think about the length this course’s 20-items questionnaires?

☐ It is adequate
☐ I do not mind
☐ It is not fair.  In this case, how many questions would be adequate for you?

9. Do you consider that 20-minutes time is enough in order for you to fill the assessment questionnaires?

☐ Yes  ☐ No, ¿Why?

10. Do you agree with questionnaires being part of the course’s final mark?

☐ Yes  ☐ No

Why?

11. What do you think about surveys’ contents?

☐ They are adequate
☐ They are fair
☐ They should be improved  In this case, please, indicate your own suggestions

12. Do you think surveys should continue as a supportive, anonymous teaching activity, being out of the course’s assessment system?

☐ Yes  ☐ No

¿Why?
A proposal of indicators for assessing the digital competence of 12 year olds: a model adapted from DIGCOM 2.0

Sonia Casillas Martín¹, Ana García-Valcárcel Muñoz-Repiso², Ana Mª Pinto Llorente³, Luís González Rodero⁴, and Verónica Basilotta Gómez-Pablos⁵

¹Universidad de Salamanca
scasillasma@usal.es

²Universidad de Salamanca
anagv@usal.es

³Universidad Pontificia de Salamanca
ampintoll@upsa.es

⁴Universidad de Salamanca
lgrodero@usal.es

⁵Universidad de Salamanca
veronicabgp@usal.es

ABSTRACT
Digital competence is one of the key competences citizens should have acquired by the time they finish the compulsory stages of education so that they can satisfactorily cope with adult life and be able to follow learning processes throughout their lives (European Commission, 2007).

We now face the challenge of assessing this competence in a rigorous way at the end of Primary Education. This has become one of the objectives of the research project called “Assessment of the digital competence of students of compulsory education and a study of the impact of socio-family variables”, financed by the Spanish Ministry of Economy and Competitiveness (EDU2015-67975-C3-3-P) currently being implemented by the GITE-USAL research group of the University of Salamanca.

For the assessment process we started with the European model, DIGCOM (Ferrari, 2013), which identifies five large areas: information, communication, creation of contents, security and problem-solving. Based on this model, specific indicators were identified for the population in question (12-year-old children), which were then validated by experts, both specialists and teachers involved in the final year of Primary Education.

The present paper thus presents the indicators of the model established to carry out the assessment of digital competence in students finishing Primary school (12 yrs. Of age), which will serve as a foundation for developing task-based assessment instruments focused on problem-solving.

KEYWORDS: digital competence, assessment, primary education, DIGCOM.

1. INTRODUCTION
A report from the European Commission (2008) calls to improve digital
competences of students to be successful succeed in the knowledge society, which would reflect on learning objectives, learning management, self-employment and teamwork and the use of multiple digital technologies. Also intends to stimulate European cooperation of schools as well as to reinforce the threefold dimension of knowledge research-innovation-education.

This paper aims to highlight the first part of an investigation entitled "Evaluation of the digital competences of students of Compulsory Education and study of the incidence of sociodemography variables", funded by the Ministry of Science and Innovation (EDU2015-67975-C3-3-P), focused mainly on identifying, analyzing and evaluating the digital competence of Spanish students at the end of primary education. Research being developed by the research group GITE-USAL.

With the purpose of designing an evaluation test of digital competences for 12 years old students a review of the main international models for the acquisition of these competences has been carried out, with the aim of identifying evaluation indicators. Between all the models and revised proposals it has been decided to follow the areas and competences set out in the DIGCOM model (Ferrari, 2013), which are the basis for defining the elaborated model of evaluation indicators.

2. THEORETICAL FRAMEWORK

The development of skills to use, effectively, creative and critical way, different types of devices and digital applications, both at home and at school or at work, is one of the most significant referents of the knowledge economy. The Organization for Economic Cooperation and Development (OECD, 2014) foresees that technologies will continue to be a key driver in the creation of employment, and it encourages the development of ICT competences as one of the most important strategies for economic recovery policies.

That is why the European Union considers, precisely, the incorporation of information and knowledge into the Society as one of its strongest elements of cohesion. Already since 2000, the OECD realizes its visible economic effects and exposes the essential "competences" to successfully join the development model supported by Internet (Van Deursen & Van Dijk, 2011), especially since the new economic conditions, social and cultural, supported by technologies, have made the mastery of reading and writing insufficient for an effective active incorporation into society.

Not only are required abilities and skills in the use of ICT and Internet access, but a mastery of new technological environments, both as personal and social training purposes (see the DeSeCo final report in Rychen & Salganik 2003; or...
If we focus on the evaluation of competences, according to Castro (2010, p. 118), we can speak of "a procedure that requires the student to complete tasks or processes that demonstrate you’re his ability to apply knowledge and skills, or apply knowledge in simulated situations similar to real life". Obviously, considering that the combinations of real problems and contexts can be infinite (Zabala and Arnau, 2007).

In addition, if we understand that competence involves the effective acquisition of knowledge, skills and attitudes, it only can be verified and confirmed by comparing the acquisition of that skill with a previously established criteria, resulting, in this way, more appropriate if it is evaluated so integral and not each of its elements separately (Villa & Poblete, 2011, De la Orden, 2011). The evaluation of the performance of a competition requires often establish levels of acquisition of the same domain. (Villa & Poblete, 2008).

Code et al. (2011, p. 235) emphasize that in order to develop an effective competency assessment, "it requires the analysis of cognitive processes and structures that contribute to the performance of the tasks". At the same time, "to estimate the mastery of the most relevant knowledge, its application to solve the problems of the profession and the advancement in the values and attitudes more consistent with the deontology required for its performance" (Medina et al, 2013, p. 242).

In this sense, the DIGCOM model (Ferrari, 2013) offers a conceptual framework of reference to identify the components of the Digital Competence of great acceptance at national and international level. The model is structured in five dimensions: 1) Information; 2) Communication; 3) Creation of content; 4) Security and 5) Troubleshooting

3. METHODOLOGY.

Taking into account the objectives of the research, a documentary review of assessment models and indicators in the areas of digital competence took place, especially those related to the DIGCOM model. The documentary revision is a technique that involves the selection and compilation of information through the reading and review documents and bibliographic materials (Avila, 2006).

In a second phase of the research, concrete indicators are formulated for all the competences of the model, for the three levels of domain (initiation, intermediate and advanced), taking into account the reference population. These indicators are discussed by a group of 5 experts on the subject to reach
the final definition of each of the indicators and their location definition at the appropriate domain level. Once the design phase of the model of indicators is carried out a process of validation by 72 expert judges, (primary and secondary school teachers and university professors specialized in different areas of knowledge) carry out a validation process under criteria of adequacy and relevance. Taking into account the results of this validation, we will introduce the appropriate amendments that allow us to obtain a final proposal of indicators of evaluation of the digital competence for children of 12 years.

4. RESULTS.

This study only shows the three most relevant indicators of competences corresponding to the basic level of the five areas are shown for reasons of extension of the document.

This selection of featured indicators of basic digital competence level, can form the basis for the construction of evaluation test or the design of strategies of development of basic digital competence in students of primary education.

<table>
<thead>
<tr>
<th>Area 1: Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competences</td>
</tr>
</tbody>
</table>
| 1.1. Browsing, searching and filtering information | - Ability to search information and browse the Internet through a digital device.  
- Ability to explore information through links.  
- Active attitude toward the search information. |
| 1.2. Evaluating information | - Knowledge of the limits of the Internet as a source of information (reliability of information).  
- Ability to select different information formats (videos, audios, texts, etc.) according to their interests.  
- Ability to understand different types of information. |
| 1.3. Storing and retrieving information | - Knowledge of different devices/storage services files and contents online and local.  
- Ability to store files and contents on different local devices.  
- He/she is aware of the importance of properly storing the information that he/she finds and/or elaborates. |

Table 1: Basic Indicators of the Information Area

<table>
<thead>
<tr>
<th>Area 2: Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competences</td>
</tr>
</tbody>
</table>
| 2.1 Interaction through new technologies | - Knowledge of different digital media: email, WhatsApp, videoconference and SMS.  
- Ability to send an email, a WhatsApp, an SMS to contact |
A PROPOSAL OF INDICATORS FOR ASSESSING THE DIGITAL COMPETENCE OF 12 YEAR OLDS: A MODEL ADAPTED FROM DigCom 2.0

<table>
<thead>
<tr>
<th>Competences</th>
<th>Key Indicators (basic level)</th>
</tr>
</thead>
</table>
| 2.2 Share information and contents               | - Knowledge of how to share content and information with colleagues (photos, videos, files ... etc.).  
|                                                  | - Ability to share information and digital resources sensibly.                             
|                                                  | - Critical attitude on practices of exchange of information and digital resources, benefits, risks and limits. |
| 2.3 Citizen participation online                  | - Knowledge of how technology can facilitate different forms of citizen participation.       
|                                                  | - Ability to find different services of citizen participation and social media that correspond to their interests and needs. |
|                                                  | - Positive attitude towards the use of digital media for citizen participation.              |
| 2.4 Collaboration through digital channels        | - Ability to work from a distance with others.                                              
|                                                  | - Ability to use social media for different types of collaboration.                        
|                                                  | - Positive attitude to be part of a team.                                                   |
| 2.5. Netiquette                                   | - Knowledge of the basic rules of conduct in digital environments.                          
|                                                  | - Ability to protect yourself and others from online threats.                              
|                                                  | - Attitude towards ethical principles of use and publication of information.               |
| 2.6 Management of digital identity                | - Knowledge about the type of information that you must disclose about yourself.            
|                                                  | - Understands the interrelation between the world inside and outside the network.          
|                                                  | - Attitude to take care of your digital identity.                                          |

Table 2: Basic indicators of the area of Communication

<table>
<thead>
<tr>
<th>Area 3: Digital content Creation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competences</td>
</tr>
</tbody>
</table>
| 3.1 Developing digital content                   | - Ability to produce simple documents in a word processor.                                 
|                                                  |   - Ability to make simple presentations.                                                  
|                                                  |   - Interest in making a good presentation of the contents.                               |
| 3.2 Integrating and re-elaborating               | - Ability to improve the content of texts written by others with a word processor.        
|                                                  |   - Ability to edit content in presentations made by others.                              
|                                                  |   - Critical attitude to value the work of others.                                        |
| 3.3 Copyright and Licenses                       | - Knowledge about the meaning of copyright.                                                
|                                                  |   - Ability to distinguish resources that do not have copyrights (usable for the works).   
|                                                  |   - Respectful attitude towards the copyright of the content used.                        |
| 3.4. Programming                                 | - Ability to perform an adequate maintenance of the software of the work team (operating system updates, plug-in browsers, ... |
- Ability to install or uninstall programs on devices.
- It is aware that changes can be made to existing software configurations.

Table 3: Basic indicators of the area of Digital content creation

<table>
<thead>
<tr>
<th>Competences</th>
<th>Key Indicators (basic level)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Protecting devices</td>
<td>- Knowledge about the effects of viruses.</td>
</tr>
<tr>
<td></td>
<td>- Ability to install antivirus on different devices (computer, tablet, mobile...).</td>
</tr>
<tr>
<td></td>
<td>- Ability to create secure passwords.</td>
</tr>
<tr>
<td>4.2 Protecting personal data</td>
<td>- Knowledge about personal information that should not be shared on the Internet.</td>
</tr>
<tr>
<td></td>
<td>- Using procedures to protect identity when installing or using applications.</td>
</tr>
<tr>
<td></td>
<td>- Prudence in privacy issues towards himself and others.</td>
</tr>
<tr>
<td>4.3 Protecting health</td>
<td>- Knowledge of the consequences of prolonged use of the technologies (time invested in Internet use, hearing problems, ocular, postural ...).</td>
</tr>
<tr>
<td></td>
<td>- Ability to control the time in the use of the Internet.</td>
</tr>
<tr>
<td></td>
<td>- Ability to build good relationships between peers through social networks.</td>
</tr>
<tr>
<td>4.4 Protecting the environment</td>
<td>- Knowledge of the environmental problems related to the use of digital technologies.</td>
</tr>
<tr>
<td></td>
<td>- Ability to take energy-saving measures in the use of technological devices (suspend the system, turn off the screen, disconnect the charger ...).</td>
</tr>
<tr>
<td></td>
<td>- Attitude of respect to the environment from the technological point of view.</td>
</tr>
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</table>

Table 4: Basic indicators of the area of Safety

<table>
<thead>
<tr>
<th>Competences</th>
<th>Key Indicators (basic level)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Solving technical problem</td>
<td>- Knowledge of the technical characteristics of the devices, programs and applications that you use.</td>
</tr>
<tr>
<td></td>
<td>- Ability to identify a technical problem requiring specialized help.</td>
</tr>
<tr>
<td></td>
<td>- Ability to request help and advice online when a problem arises.</td>
</tr>
<tr>
<td>5.2 Identifying needs and technological responses</td>
<td>- Basic knowledge of digital tools to carry out daily activities of information, training, communication and leisure.</td>
</tr>
<tr>
<td></td>
<td>- Ability to use digital tools to carry out daily activities (leisure, learning, communication with friends and family, search for</td>
</tr>
</tbody>
</table>
### A Proposal of Indicators for Assessing the Digital Competence of 12 Year Olds: A Model Adapted from DIGCOM 2.0

| 5.3 Creatively using digital technologies | - Knowledge of resources and tools that allow you to develop your creativity.  
- Ability to use technologies to develop their imagination (telling stories, creating images, posters, etc.).  
- Positive attitude toward technologies as means of self expression. |
| 5.4 Identifying digital competence gaps | - Knowledge of their own limitations in relation to the domain of digital media the characteristics and operation of digital media.  
- Ability to identify the needs for improvement in the use of digital media in their daily lives.  
- Awareness about their level of knowledge and digital competence and the repercussion in the accomplishment of formative, communicative activities. |

Table 5: Basic indicators of the area of Problem solving

5. IMPLICATIONS/DISCUSSION.

The proposal of highlighted indicators of basic level presented in this work supposes an effort of selection and concretion of the indicators that form part of the model DIGCOM (Ferrari, 2013) to adapt them to the context of the competential development of the children that finalize the primary education (12 years).

In this sense, it is argued that children of this age to know how to search information through the Internet, evaluate and store it correctly. They must be able to use different technological means to communicate, share information and participate in online processes, collaborating with others at a distance, using the basic rules of conduct and properly managing their digital identity. They should also be able to create content and rework it respecting copyright. They must ensure the safe use of electronic devices, the protection of personal data, health and the environment. And, finally, they must be able to contribute to the solution of technical problems and to solve daily tasks making use of the technologies as well as to develop their creative capacity, being aware of their limitations in digital competences.

This model of validated indicators will serve as a basis, not only for the design of instruments for the evaluation of digital competence, but also for the development of training programs aimed at fostering this competence, which, as indicated, is crucial in the Literacy of today's society.

This model is in line with the proposal made by the National Institute of Educational Technologies and Teacher Training, which proposes a digital literacy model that allows teachers to support the acquisition of digital skills by
students, based on The theoretical contributions of Andersen (2009), Area (2008), Marqués (2008) and UNESCO (2008).

In this line, we also find the Ikanos (2015) project, developed by the Basque Government, within the Digital Agenda 2015 to disseminate and stimulate the acquisition of digital competences in citizenship, adapting the DIGCOM model to its objectives and offering a Proposal of self-evaluation in this competition through the Network.

Also related to this work is the interesting proposal of Pearson (2017) "Functional Skills ICT" that proposes a model of evaluation of digital competences and online consultancy.

6. CONCLUSIONS

Developing digital competence is a must in today's education, therefore students should be able to be informed, communicated, create content, make safe using the Internet and solving problems of their daily lives within the necessary digital tools and appropriate to their age.

Encouraging rigorous evaluation of this competence based on a validated model of indicators is the main contribution of the presented work.

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A PROPOSAL OF INDICATORS FOR ASSESSING THE DIGITAL COMPETENCE OF 12 YEAR OLDS: A MODEL ADAPTED FROM DIGCOM 2.0

Interactivity in e-learning: Case studies and frameworks (230-252). IGI Global.


Diagnostic assessment of the conceptual knowledge of technology in future teachers of Early Childhood Education

Sonia Casillas¹, Marcos Cabezas², and Ana María Pinto³

¹Universidad de Salamanca
scasillasma@usal.es
²Universidad de Salamanca
mcabezasgo@usal.es
³Universidad Pontificia de Salamanca
ampintoll@upsa.es

ABSTRACT
Today's society demands well-trained teachers who are able to integrate Information and Communication Technologies (ICT) in their everyday educational practice. Early childhood education, which is at the root of the rest of the entire educational system, cannot remain uninvolved in this demand. Digital competence is an ability which integrates knowledge, know-how and knowing how to be. In this paper we focus on the first of these elements in order to carry out a diagnostic assessment of the extent of knowledge that future teachers of Early Childhood Education possess in regard to ICT-related concepts. To do so we followed a quantitative methodology employing an online survey technique to collect the data and the descriptive and inferential method for data analysis. The sample comprised 332 students in their first year of the degree programme in Early Childhood Education at the University of Salamanca (Salamanca campus), was predominantly composed of women (98.6%) and ages ranged between 17 and 24 years.

The main conclusion drawn is that these future teachers had practically no prior theoretical knowledge about technology. Therefore, universities should be one of the main institutions responsible for conceptual training so that future professionals in Early Childhood Education will be able to successfully integrate ICT in their educational practice.

KEYWORDS: Curriculum, initial teacher training, information and communication technologies, digital competence, early childhood education.

1. INTRODUCTION
The impact of information and communication technologies (ICT) on the information society, as a specific form of social organization where information production, processing and transfer are key pillars of productivity and power because of the new technological conditions born in this historical period (Castells, 1999), and on the knowledge society, where know-how and knowledge are the principles that govern and determine social structure as
peoples’ welfare and progress instruments (Mateo, 2006), is so huge that it leads to the need for training citizens to live in this type of society (Hernández, López & Sánchez, 2014; Suárez, Almerich, Gallardo & Aliaga, 2013).

This paper presents the main results of a study focused on knowing the self-assessment of Spanish early childhood education teachers about their knowledge of concepts related to Information and Communication Technologies (ICT).

2. THEORETICAL FRAMEWORK

Twenty-first-century students need competences that enable them to adapt to a new type of individual-information and individual-knowledge relationship and, therefore, the education system should contemplate new ways for learners’ development in accordance with this so-called information and knowledge society (Chávez, Cantú & Rodríguez, 2016; Lázaro & Gisbert, 2015). This background confirms the need for education centers to include new learning theories, methodologies, materials, resources and devices to replace the traditional classroom with digital classrooms where students can acquire competences appropriate to this century’s network society (Roblizo, Sánchez & Cózar, 2015).

There is a wealth of scientific literature from recent years on the subject of teachers’ perception of knowledge, attitude and usefulness of ICTs in teaching practice, from the perspectives of both initial and in-service training (Álvarez et al., 2011; Cabero, 2014; Cabezas, Casillas & Pinto, 2014; Casillas & Cabezas, 2014; Casillas, Cabezas, García y Pinto, 2016; Casillas, Cabezas, García & De Castro, 2015; Fernández & Bermejo, 2012; Fernández & Torres, 2015; Prendes & Gutiérrez, 2013; Valdés, Angulo, Nieblas, Zambrano & Arreola, 2012).

To foster students’ development of digital competences after completing their schooling, work on them should be started from the first school years. Although ICTs are frequently used in early childhood education, they are neither integrated into daily classroom activities, nor applied to develop contents associated with the teaching units that are underway, their use being more recreational than educational. In short, they are mostly used at specific times rather than as regular tools in the teaching-learning process (Asorey & Gil, 2009).

In short, education is an essential pillar for people to learn how to function in the world. Changes in the context and ways of learning entail logical changes in education and, therefore, a new approach that includes ICTs as teaching tools in educational processes and a redefinition of teachers’ role that is in keeping with the demands of current society (Pozuelo, 2014).
3. METHODOLOGY.
3.1. Methodology and data analysis

Within the range of research methods, a quantitative, non-experimental and descriptive methodology was followed, using the questionnaire technique for data collection, designed on the basis of the criteria established by authors such as Lumsden (2007) and Norman, Friedman, Norman, and Stevenson (2001). A descriptive correlational method was used (Kerlinger & Lee, 2002) relying on an electronic survey study.

The organization, analysis and statistical processing of data was performed using Statistical Package for the Social Sciences (SPSS v.21) software. They were processed focusing on a descriptive analysis where the means of the technological capacities conocimientos of future early-childhood education teachers at the beginning of their training was calculated.

3.2. Sample

The study sample was made up of 332 students who, being pre- and in-service teachers, took the Information and Communication Technologies in Education course in the past four academic years (2012-2016). This subject is included in the study plan of the Undergraduate Degree in Early Childhood Education of the University of Salamanca (Spain) and is part of the first-year curriculum of the degree.

The final sample consisted of 1.4% men and 98.6% women, aged from 17 to 24. They all owned smartphones (100%), practically all of them had laptops and digital cameras (97.3% in both cases), 73% had GPS devices, and 67.6% owned desktop computers and tablets. Fewer owned digital camcorders (48.6%) and e-readers (40.5%), and only 2.7% owned wearables of some kind.

3.3. Instrument

It consists of 38 items, five of which are identifying variables. A 0 to 10 ordinal Likert-type scale was chosen, 0 being the lowest and 10 the highest. The average score (5) indicates that the student believes to be capable (fit) of performing the proposed tasks.

With regard to structure, the instrument is divided into two sections: the first gathers student’s identification data (ID) (sex, age, degree and year) and the second consists of the items related to knowledge (KN).
Table 1: Structure of the questionnaire

4. RESULTS.
4.1. Students’ self-assessment of their level of knowledge of ICT concepts and devices
The tables below show the mean, standard deviation, lowest and highest scores that students give to each competence of this section about their knowledge of concepts related to ICT. The results show the knowledge that they have already acquired and what they need to learn.

<table>
<thead>
<tr>
<th>KNOWLEDGE</th>
<th>X</th>
<th>Sx</th>
<th>Lowest</th>
<th>Highest</th>
</tr>
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<tbody>
<tr>
<td>Concepts</td>
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<td></td>
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<tr>
<td>Wikipedia</td>
<td>9.49</td>
<td>1.29</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Cloud storage</td>
<td>7.36</td>
<td>2.55</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Information and communication technologies (ICT)</td>
<td>7.28</td>
<td>1.86</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Learning Object (LO)</td>
<td>5.62</td>
<td>3.02</td>
<td>0</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 2: Descriptive statistics for knowledge of ICT (acquired)

<table>
<thead>
<tr>
<th>KNOWLEDGE</th>
<th>X</th>
<th>Sx</th>
<th>Lowest</th>
<th>Highest</th>
</tr>
</thead>
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<tr>
<td>Concepts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virtual Reality (VR)</td>
<td>4.50</td>
<td>3.15</td>
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<tr>
<td>Learning and knowledge technologies (LKT)</td>
<td>4.41</td>
<td>2.64</td>
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<tr>
<td>Digital literacy</td>
<td>3.46</td>
<td>2.97</td>
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<td>10</td>
</tr>
<tr>
<td>Podcast</td>
<td>3.36</td>
<td>3.01</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Blogosphere</td>
<td>3.35</td>
<td>3.03</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Cyberactivism</td>
<td>3.24</td>
<td>3.32</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Augmented reality (AR)</td>
<td>3</td>
<td>3.11</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Creative Commons license</td>
<td>2.58</td>
<td>3.13</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Web 2.0</td>
<td>2.51</td>
<td>2.85</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Social bookmarking</td>
<td>2.51</td>
<td>2.56</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>E-learning</td>
<td>2.45</td>
<td>2.94</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Empowerment and participation technologies (EPT)</td>
<td>2.27</td>
<td>2.11</td>
<td>0</td>
<td>9</td>
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<tr>
<td>Digital divide</td>
<td>1.84</td>
<td>2.34</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Web 3.0</td>
<td>1.78</td>
<td>2.04</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>
D IAGNOSTIC ASSESSMENT OF THE CONCEPTUAL KNOWLEDGE OF TECHNOLOGY IN FUTURE TEACHERS OF EARLY CHILDHOOD EDUCATION

Table 3: Descriptive statistics for knowledge of ICT (not acquired)

<table>
<thead>
<tr>
<th>Concept</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copyleft</td>
<td>1.66</td>
<td>2.24</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Web syndication</td>
<td>1.59</td>
<td>2.22</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Mashup</td>
<td>1.54</td>
<td>2.11</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>E-participation</td>
<td>1.46</td>
<td>1.91</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>M-learning</td>
<td>1.39</td>
<td>2.16</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>B-learning</td>
<td>1.32</td>
<td>1.96</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>E-exclusion</td>
<td>1.26</td>
<td>1.88</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Empowerment</td>
<td>1.22</td>
<td>1.70</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>E-inclusion</td>
<td>1.19</td>
<td>1.72</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>MOOC</td>
<td>1.14</td>
<td>1.84</td>
<td>0</td>
<td>10</td>
</tr>
</tbody>
</table>

As shown, self-assessment scores for most concepts are below five, which means that concepts related to ICT are generally unknown to students. We consider that they are only aware of those whose means are above five. Only 14.3% of the concepts chosen for this research are known to students at the beginning of their initial training. Additionally, standard deviation is very high, indicating that homogeneity of responses is very low because of the existence of very different levels.

When asked about device knowledge, the answer is unanimous, 100% are familiar with tablets, smartphones, eBooks, IWB and GPS. However, only 30% know what a wearable is.

5. CONCLUSIONS/DISCUSSION.

This study illustrates the level of self-perceived knowledge about digital concepts and devices of students of the Undergraduate Degree in Early Childhood Education of the University of Salamanca (Spain), with special focus on the variables of knowledge, use and attitude towards ICT.

The results obtained show that students do not have an adequate level about digital concepts. However, they have a good level of digital devices. We are convinced that they do not have sufficient digital competence to use ICT in their academic life and for their professional career.

Most of the participants in the survey own technological devices, mainly smartphones, laptops, digital cameras and GPS devices.

Considering the variables analysed, students believe they fail in knowledge of ICT-related concepts and assess their knowledge of devices as very good, results differ widely, as has been already observed in other studies (Prendes, Castañeda & Gutiérrez, 2010; Roblizo, Sánchez & Cózar, 2015; Roig & Pascual, 2012; Ruiz, Anguita & Jorrín, 2006).

Considering the sex variable, there are indeed statistically significant differences, which agrees with the results of recent research on the topic by
other authors (Barrantes, Casas & Luengo, 2014). Men self-assess their knowledge and use of ICT more positively than women who, on the other hand, score higher in attitude.

The results obtained show that digital competence is a yet to be achieved ability for students beginning their training in the Undergraduate Degree in Early Childhood Education. We believe the development of this competence should be strongly promoted in the current curricula for education degrees, since we are aware that this is not yet a reality (Barrantes, Casas & Luengo, 2014; Cózar & Roblizo, 2014). It is necessary for the initial training of these future professionals to include work on developing this competence, even though research conducted by Losada, Valverde and Correa (2012), focused on the analysis of the situation of educational technology in undergraduate degrees of education offered by Spanish universities after the implementation of the European Higher Education Area (EHEA), concludes that the presence of educational technology has not increased in relation to previous study plans. The implementation of the EHEA has caused ICTs to lose force in the development of the digital competence of future education professionals. Accordingly, there has been a decline in comparison with the former diploma degree study plans (3-year degrees), since there is currently no guarantee that all students will receive specific training in educational technologies, as had been the case before

REFERENCES


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DIAGNOSTIC ASSESSMENT OF THE CONCEPTUAL KNOWLEDGE
OF TECHNOLOGY IN FUTURE TEACHERS OF
EARLY CHILDHOOD EDUCATION


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Study on the personal indicators that influence the development of digital competence in primary education students

Marta Martín del Pozo¹, and Marcos Cabezas González².

¹University of Salamanca, Spain
mmdp@usal.es
²University of Salamanca, Spain
mcabezasgo@usal.es

ABSTRACT
This paper falls within the framework of broader research on the assessment of the digital competences of students in their final years of primary education. Based on the multidimensional nature of digital competence, we can state that its development is influenced by that there are several factors. Among them, we would like to highlight social and family indicators. According to the "Assessment framework" developed from the International Computer and Information Literacy Study (Fraillon, Schulz & Ainley, 2013), these indicators can be classified into four factors: personal indicators, family/household indicators, school indicators and contextual/community indicators. This work focuses on personal variables based on their importance and because, as many studies report, these variables have a direct impact on the acquisition, development and use of digital competences. Thus, we focus on personal variables such as students’ age, gender, the first time they used a computer and the Internet, their perception of ICT usage in their daily lives and in the teaching and learning process, their digital self-efficacy and the frequency with which they use ICT resources (both at home and for school activities). The method consists of a descriptive study based on a documentary review of studies on the topic that provide data to extract information on the most decisive indicators of the acquisition of these competences. The purpose of this is to design a problem-solving based instrument intended to allow teachers and researchers to assess students’ real digital competence at this stage and to improve the teaching process and practices in this area.

KEYWORDS: digital competence, primary education, personal variables, ICT.

1. INTRODUCTION
Access to Information and Communication Technology (ICT) is having a very positive impact at all levels of the education system. However, to make the best use of it in teaching and learning processes, youth, children and, considering our study’s target group, students in their final years of primary education, should be encouraged to develop their digital competence to effectively,
critically and actively exercise their role in benefiting from the means it provides. Although the trend to use ICT occurs at all ages, there is a noticeable increase towards puberty, when it is seen as a tool to interact, communicate with peers, and acquire information and knowledge. The use of different ICT devices and technological applications is influenced by many factors, since digital competence has a strong multidimensional nature and, thus, there are several underlying factors, both socio-familiar and personal, that influence its acquisition and development. Specifically, according to the "Assessment framework" report provided by the International Computer and Information Literacy Study (Fraillon, Schulz, & Ainley, 2013), these factors/indicators can be classified into four categories: personal, family/household, school, and contextual/community.

2. THEORETICAL FRAMEWORK

In the context of the personal factors addressed in this study, the mentioned report refers to the following indicators as influencing the acquisition and mastery of digital competences: age, gender, first experience with a computer and the Internet; perception of ICT in everyday life and in the teaching-learning process; self-efficacy in ICT competence; and frequency of use of technological tools, which is conditional on the type of tools and the number of hours spent using them. Moreover, Aesaert et al. (2015) target certain of these personal factors in the EDC-model as elements that could generate differences in primary students’ ICT competences, for instance, experience in using ICT, attitude towards ICT, availability of ICT resources or gender and age, which reveals the significance of this type of variables.

In this regard, several studies have focused on the difference between girls and boys in ICT use (Centeno & Cubo, 2013; Del Moral, 2014; Roblizo & Cózar, 2015).

Age is another key factor in establishing the differences between girls and boys. Most studies reveal that the youngest value digital competence and ICT use higher (García, Ramírez & Rodríguez, 2014; Martos, Pérez & Bernal, 2016), even noting how ICT-usability problems increase with age (De Oleo & Rodríguez, 2010).

Children’s self-perception of the use of ICT in their everyday life is very positive. Likewise, this is also so for the teaching-learning process (Naval, Sádaba & Bringué, 2003). Alongside the particular importance they attach to it, they do not believe its use to be excessive, assessing the intensity and frequency of use as normal (INTECO, 2009).

Bandura introduced the concept of self-efficacy in 1977, referring to a person’s belief, confidence and strength in the ability to complete tasks and reach goals.
A person’s self-perception determines the degree of effort, commitment and involvement towards the fulfilment of objectives. Males within the age range referred tend to make frequent use of the Internet (INTECO, 2009). Age and gender are variables that should be taken into consideration when analysing the frequency-of-use factor. Finally, while all these technologies can be used in a recreational or fun environment, they are also useful for doing school homework.

3. METHODOLOGY.
The research methodology used consists of a descriptive study based on a literature review of studies on the issue to extract information on the influence of personal factors in the acquisition of digital competences by students in the last years of primary education. This methodology is a first step in the context of broader research where the ultimate goal is to design a problem-solving based instrument to assess students’ real digital competence at the mentioned stage and its relation to both personal and family-related variables.

4. RESULTS.
4.1. Gender and use of ICT
Gender plays a role from the earliest ages of development, both with regard to type of means and to the use made of them. Thus, while boys consider that the purpose of technological tools is mainly recreational, girls find their communicative uses more appealing. These differences are the result of different socialization interests (Del Moral, 2014). With regard to gender, we may conclude that male students are better with ICT, while female students show a more positive attitude towards them (Cuadrado, Fernández & Ramos, 2009; Roblizo & Cózar, 2015). However, according to other studies, the trend is for the gender digital divide to become smaller and more level, since the difference between female and male students as regards the use of and attitude towards ICT is becoming increasingly balanced (Cózar & Roblizo, 2014). Thus, Centeno & Cubo (2013) notice that male students are not familiar with more ICT resources and tools than female students, nor better skilled in their use, and that their attitude towards them is not better either.

4.2. Age of introduction to the use of ICT
gender and point out that women use the Internet for learning purposes more frequently, although only at older ages, with no noticeable differences when young.

According to the Spanish National Institute of Communication Technologies, INTECO (2009), around 78% of children are regular computer users at the ages of 8-9, while their first experience with the Internet takes place slightly later, when they are around 10-11 years old, although we believe that the latter depends mainly on family or school-related factors. Both girls and boys use the Internet to send and receive emails, download files and search for information. In this regard, subsequent studies such as the one by Garmendia, Jiménez, Casado & Mascheroni (2016) reveal data on the Internet use starting age, showing that it is becoming reduced to around seven.

4.3. Perception of ict in everyday life

Bearing in mind that children at the ages addressed in this study coexist with ICTs from an early age, they consider that using them in their daily lives is normal and positive, liking to use them a lot or quite a lot in comparison with other activities such as watching TV. In this regard, a study conducted in 2008 by the Telefónica Foundation and the University of Navarra shows that when faced with the choice between TV and the Internet, children and youth prefer the Net. Specifically, 45% of children in the 6 to 9 age range choose this, against 37% who choose TV.

In terms of videogames, the growing number of game consoles in households clearly suggests that children like them, and even parents agree on the beneficial influence of videogames on their children, since they keep them amused while contributing to the development of their intelligence and/or reflexes (AEVI & MetrixLab, 2014).

4.4. Perception of ict in the teaching-learning process

Naval, Sádaba & Bringué (2003) delve into the importance that studies in the mentioned age range give to the use of technological tools in the educational context. Based on the results, students perceive the potential of ICT in the teaching-learning process as positive, finding them particularly relevant for the search of information and as tools to increase their motivation to carry out different tasks. Nevertheless, they are aware that excessive use of certain devices such as mobile phones distract attention and can lead to loss of concentration when studying. They do not perceive other recreational uses of the Internet as reasons for lower academic achievement, or even underachievement, although they do admit the possible influence of uncontrolled use of the Web and mobile phones.
4.5. Self-efficacy in basic and advanced ICT competences

We have found certain studies by university students such as Peinado & Olmedo (2013) that are focused on the analysis of self-efficacy in ICT competences. Research on this matter is particularly centred on analysing the level of media skills and technological competences of primary and compulsory secondary education (ESO) students, but not on associating their perception of self-efficacy with potential performance in the use of technological tools. The study by García, Ramírez & Rodríguez (2014) can be counted among those along these lines, with particular focus on media skills, but also useful to analyse the state of the question. These authors establish three competency levels: basic, average and advanced. According to the results obtained for primary and compulsory secondary education students, which are the closest to the age range targeted in this study, most primary students achieved an average competency level, while the competency levels obtained for compulsory education students were more polarized, being essentially basic. These results are interesting because they show that, despite the fact that the participating students were very familiar with ICT, the percentage of correct answers falls when use of technology in association with higher proficiency is targeted, which suggests that the use of technological tools does not in itself ensure adequate usage. This leads to the conclusion that digital competence should be improved through knowledge, which would also influence in increasing self-efficacy.

4.6. Frequency of use

According to the Survey on ICT Equipment and Use in Households conducted by the National Institute of Statistics-Instituto Nacional de Estadística (2016), 92.6% of children between the ages of 10 and 11, and 94.8% of twelve-year-olds declare to have used computers over the last 3 months; moreover, 90.6% of 10-year-old children, 93.1% of 11-year-old children and 95.9% of 12-year-old children claim that they have used the Internet over the last 3 months.

According to the AEVI-Spanish Videogames Association (2015), 75% of Spanish children between the ages of 6 and 10 and 79% of those between 11 and 14 play videogames. In fact, Bernat (2006) considers videogames to be children’s gateway to the use of ICT. These resources allow the development of the like of digital competences (Martín & Martín, 2015).

Additionally, according to the Childhood Observatory of Andalusia (2010), Andalusian children between the ages of 9 and 16 use computers for school tasks less frequently than for recreational activities. Thus, 21.8% use computers for school tasks every day or almost every day, against 58.2% who use it to
play, listen to music or look at pictures. However, other studies (Institut d’Estadística de Catalunya, 2011) report that 98.7% of Catalan children between the ages of 10 and 15 used computers for school tasks, against 92.7% who used them for entertainment.

5. DISCUSSION AND CONCLUSIONS
The knowledge and information society that we live in moves ahead at a rapid pace where people of all ages actively and on a daily basis interact with the possibilities offered by technologies, which are used to access a multitude of digital services and contents that would be otherwise impossible to approach. The interactive nature of ICTs, added to the global connectivity they facilitate, encourage new ways for both adults and new generations to actively interact at the social, family, communicative, information and entertainment levels, as well as in the area of learning interaction, within their social and educational context.

In this regard, Ditrendia (2016) indicates that

[…] In 2015, 98% of young people between the ages of 10 and 14 already had a state-of-the-art telephone and Internet connection. Nevertheless, they start at a much earlier age. In Spain, children between the ages of 2 and 3 borrow their parents’ mobile phone on a regular basis to use applications such as games or videos. (p.16)

The possibilities offered by new technologies are leading to an increase in their use in educational contexts, where learning experiences—especially at the stages included in compulsory education—are ever more relevant and innovative, since they encourage the development of new skills and forms of knowledge building. Thus, the inclusion of ICT, especially in Spanish primary education classrooms, gives students access to a digital learning world where, in the words of Piscitelli (2009), the greatest challenge is to teach what is old using new eyes. This is achieved through the incorporation of teaching methods in keeping with the new times, intended for students to interact with technology in an autonomous and individual way, while generating their own learning and managing their own working pace. This work methodology allows students more freedom of interaction in the classroom, fostering a type of flexible learning whose greatest exponent is the enrichment of the actual educational experience that is being implemented.

Despite the wide range of possibilities offered in the educational, family, social and community contexts, we wish to conclude by noting that students’ digital competences are not as satisfying as might be expected from 21st-century citizens.
STUDY ON THE PERSONAL INDICATORS THAT INFLUENCE THE DEVELOPMENT OF DIGITAL COMPETENCE IN PRIMARY EDUCATION STUDENTS

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STUDY ON THE PERSONAL INDICATORS THAT INFLUENCE THE DEVELOPMENT OF DIGITAL COMPETENCE IN PRIMARY EDUCATION STUDENTS


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Video games and higher education students from the Degree in Pedagogy: Attitude towards collaborative learning with video games and other related variables.

Marta Martín del Pozo¹, Verónica Basilotta Gómez-Pablos², Ana García-Valcárcel Muñoz-Repiso³

¹University of Salamanca, Spain
mmdp@usal.es
²University of Salamanca, Spain
veronicabgp@usal.es
³University of Salamanca, Spain
anagv@usal.es

ABSTRACT
Nowadays, people live their lives surrounded by technology. We use technology to communicate, check news, study and for entertainment. However, digital technologies can also be used to develop innovative practices in education and to address the syllabus in different ways. As the most common form of digital entertainment, video games are being more frequently incorporated into different educational levels (e.g. primary or secondary education). However, the use of video games in education is heavily dependent on educators’ attitudes towards them. Therefore, in this paper, we examine the attitudes of higher education students on the degree course in Pedagogy at the University of Salamanca towards collaborative learning with video games. As the future graduates of this course will be pedagogues, educationalists, teachers or educators in various educational contexts, it is important to establish their current attitudes towards the use of video games in education. We use an attitude scale created ad hoc for the study comprising 33 Likert items to know about their attitudes. Also, the questionnaire has other questions to ask the students about their gender, their frequency of playing video games and their playing preferences. Overall, the results show a positive attitude (mean=3.88; standard deviation=0.40) of the future pedagogues-educationalists towards collaborative learning with video games (which is nearly the option “Agree” in the scale), suggesting that they will likely implement innovative practices using video games in collaborative learning activities in the future. Furthermore, the male students, those who typically play video games more frequently and those who prefer to play video games with other people have better attitudes towards using video games in collaborative learning.

KEYWORDS: video games, collaborative learning, pedagogy, higher education.
1. INTRODUCTION

Nowadays, people use technology in all aspects of their lives, and technology is increasingly being incorporated into education because the use of digital technologies can allow teachers to implement innovative practices into the classroom. As one of the most common forms of digital entertainment, video games are now being used as an educational resource at different educational levels (e.g. from primary through to higher education), and there is increasing interest in the possibility of video games for educational objectives, not only in a formal context, but also in non-formal and informal educational contexts. Video games can be used effectively for educational purposes and they can promote learning outcomes (Martín & Martín, 2015); however, as the use of video games in education depends on the educators and on the others educational agents, it is important to examine the attitudes of educators, teachers and student teachers towards incorporating video games in the classroom. In this paper, we analyse the attitudes of first-year higher education students, studying for a Degree in Pedagogy at the University of Salamanca, to establish their current attitudes towards incorporating collaborative learning with video games into their learning and future teaching, and to examine the relationship of their attitudes with other variables: gender, their frequency of playing video games and their playing preferences.

2. THEORETICAL FRAMEWORK

In the future, the current higher education students of the degree course in Pedagogy will be educators working in various educational contexts such as schools, universities, NGOs, charity associations, companies and even hospitals. According to ANECA (2004), this type of educators carries out their work in two main areas: institutional education and education in other contexts. In terms of institutional education, this type of educators (1) teaches, advises or guides students about personal, professional or scholarly issues; (2) designs, develops and coordinates educational programs; (3) designs, develops and produces educational resources; (4) manages, coordinates and advises in educational centres; (5) researches educational issues; (6) participates as educational experts in educational services; and (7) advises on educational programmes. On the other hand, ANECA (2004) has claimed that the most meaningful fields involving education in other contexts are the following ones: business, publishing, mass media as well as the ICT, health, environmental, social services, public services management, and sociocultural and socio-community fields.

These wide-ranging fields will enable the students of Pedagogy to hold various roles, including that of a teacher, educator, coach, employment consultant,
eLearning development consultant or human resources manager. These future graduates could also work within a range of different settings involving people of all ages or people in disadvantaged groups. This type of educators can thus be considered holistic agents who can perform their work in any area involving the education of people.

Digital technology is a useful resource for all fields involving this type of educators because it can be used to manage a syllabus of different subjects, enhance learning, improve workers’ qualifications, promote various skills, improve communication, assess abilities or skills, and entertain. In that sense, video games are one of these technologies and they can be used in the educational field. The possibility of using video games as an educational resource has therefore become a line of research in the field of educational technology, considering all educational agents (teachers, students, educationalists, educators and parents). According to Martín, Basilotta and García-Valcárcel (2017), existing literature about video games and education can be organised into the following groups: (1) students create video games to learn something (e.g. Alexander & Ho, 2015; Kafai & Burke, 2015; Ouahbi et al., 2015; Wilson, Hainey & Connolly, 2013); (2) teachers and developers create serious games (e.g. educational games) to teach the students (and these video games are used in education) (e.g. Evaristo, Navarro, Vega & Nakano, 2016; Baalsrud Hauge et al., 2013; Martín-Dorta et al., 2014; Tegos et al., 2014); (3) games designed for entertainment are used in the classroom (for example, Barr, 2016; Cortés, García & Lacasa, 2012; Liu, 2016; Schrader, Deniz & Keilty, 2016); and (4) analyses of the educational possibilities of specific video games and educational proposals (e.g. Cuencá, Martín & Estepa, 2011; Martín, 2013; Martín & Martín, 2015; Pérez & Ortega, 2011).

The type of educators (who are talking about on this paper) can take part in any of these spaces about video games and education, but, first, they need information, education and training about this topic. It is important to establish educators’ attitudes towards the use of video games because their attitudes can influence their support or lack thereof towards incorporating video games into their teaching and their attitudes can influence their training about this topic.

In this paper, we focus on the first-year students of Pedagogy at the University of Salamanca to examine their attitudes towards the use of video games in collaborative learning. As the early stages of their training can influence their attitudes towards their preferred resources, it is important to develop positive attitudes towards effective methods of teaching.
We focus specifically on ‘collaborative learning with video games’, which Martín, Basilotta and García-Valcárcel (2017) have defined as:

“the implementation of educational activities in which students work together in pairs or groups, sharing responsibilities, negotiating, discussing and contributing their ideas to achieve an objective (e.g. a project, a task, or to solve a problem) and the main resource of the activity is a video game. In other words, ‘collaborative learning with video games’ refers to the use of video games in collaborative learning activities, in which the collaboration between peers can occur inside the game, outside the game or both, depending on the activity or the methodological strategy used by the teacher’ (Martín, Basilotta & García-Valcárcel, 2017, p. 4).

Some examples of this educational approach can be found in Martín (2015). We aim to find out the general attitude of this type of future educators towards collaborative learning with video games and ascertain whether any differences exist in their attitudes in terms of gender, frequency of play and playing preferences (alone or with other people). These variables could affect the educators’ attitudes. For example, regarding gender, considerable literature examines women’s use of video games, their preferences, images of women in video games (both inside the game or on the covers), the female characters and their roles in video games (e.g. Bueno & García, 2012; García & Bueno, 2016; Guerra & Revuelta, 2015), and these issues might influence women’s attitudes towards not only video games but also video games in education. Several studies have also reported better attitudes from male students or male teachers towards video games in general or towards video games in education than from female students or teachers (Bonanno & Kommers, 2008; Hainey et al., 2013; Martín, Basilotta & García-Valcárcel, 2017). In terms of frequency of playing video games, previous studies have shown that students, teachers, parents or other people who play more frequently and have more experience with video games have better attitudes towards or higher acceptance of video games in general and video games in education (Bonanno & Kommers, 2008; Bourgonjon et al., 2011; Martín, García-Valcárcel & Basilotta, 2016). Finally, regarding collaborative learning, preferences of playing alone or with other people could influence the undergraduate students’ attitudes towards collaborative learning with video games.

3. METHODOLOGY.
The objective of this paper is to investigate whether first-year higher education Pedagogy students hold a generally positive or negative attitude towards collaborative learning with video games. We also examine whether variables such as gender, frequency of play and playing preferences generate statistically significant differences among the students’ attitudes.
Using a quantitative approach to attain these objectives, we used a questionnaire comprising 33 items with a 5-point Likert attitude scale ranging from 1 (strongly disagree) to 5 (strongly agree). The Cronbach’s alpha coefficient of the scale is 0.908, indicating a high internal consistency. The questionnaire included demographic questions and other questions related to the students’ experiences with video games.

4. RESULTS.

Overall, the first-year higher education Pedagogy students showed a positive attitude towards collaborative learning with video games. The students obtained a mean ($\bar{x}$) of 3.88 (out of 5), which is above the midpoint of the scale and close to option 4 (agree; standard deviation=0.40).

Before analysing the other variables, we tested the normality of the distribution of the data to determine the need for a parametric or nonparametric test. We tested the normality of the distribution using the Kolmogorov-Smirnov test, and obtained a result of 0.055 (K-S test>.05). This result indicates normality of the distribution, and we were thus able to conduct inferential analysis using a parametric test. We conducted inferential analysis to find whether any statistically significant differences existed among the variables.

Regarding the gender, we performed an independent samples t-test, with a significance level of $\alpha=.05$. The results showed a statistically significant difference between the groups ($p=.016$), indicating more positive attitudes from the male students than from the female students (Table 1).

<table>
<thead>
<tr>
<th>Gender</th>
<th>Statistics</th>
<th>Effect size d Cohen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men n=14</td>
<td>Women n=47</td>
<td>T</td>
</tr>
<tr>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
</tbody>
</table>

Table 3: Attitude towards collaborative learning with video games regarding gender

In terms of the students’ frequency of playing video games, a one-way ANOVA test was performed, with a significance level of $\alpha=.05$. The findings confirmed a statistically significant difference among their attitudes based on the frequency of playing video games ($p=.013$; Table 2). Additionally, as Table 3 shows, regarding post-hoc comparisons between groups, statistically significance differences ($\alpha=.05$ significance level) were found between groups A (never play) and D (play every day; Scheffe: $p=.020$; Bonferroni: $p=.011$), and between B (play occasionally) and D (play every day; Scheffe: $p=.032$;
Bonferroni: \( p = .020 \). These results indicate that students’ attitudes become increasingly positive as the students’ time spent playing video games increases.

<table>
<thead>
<tr>
<th>Frequency of playing video games as entertainment</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Never ( n=11 )</td>
<td>B Occasionally ( 1-3 ) days a month ( n=36 )</td>
</tr>
<tr>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Total sample ( n=61 )</td>
<td>3.73</td>
</tr>
</tbody>
</table>

Table 4: Attitude towards collaborative learning with video games regarding the frequency of playing video games as entertainment.

<table>
<thead>
<tr>
<th>Post-hoc comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant differences between groups</td>
</tr>
<tr>
<td>A-D</td>
</tr>
<tr>
<td>B-D</td>
</tr>
</tbody>
</table>

Table 5: Post-hoc comparisons between the groups generated by the frequency of play.

Regarding the students’ playing preferences – playing alone or playing with other people – we performed an independent samples t-test, with a significance level of \( \alpha = .05 \). The sample for this analysis comprised only 50 students because we excluded those students who said in the previous analysis that they never play video games. If they never play video games, they are unable to answer the question ‘How do you prefer to play video games, alone or with other people?’. Table 4 shows that a statistically significant difference was evident between the groups \( (p = .042) \), indicating that students who prefer to play with other people have better attitudes towards collaborative learning with video games than do students who prefer to play alone.

<table>
<thead>
<tr>
<th>How the students prefer to play</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample (excluding students who never play video games) ( n=50 )</td>
<td></td>
</tr>
<tr>
<td>Alone ( n=16 )</td>
<td>With other people ( n=34 )</td>
</tr>
<tr>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>3.74</td>
<td>0.37</td>
</tr>
</tbody>
</table>

Table 6: Attitude towards collaborative learning in relation to playing preferences.
5. DISCUSSION AND CONCLUSIONS

While video games can be used in a variety of settings involving educators, the effective implementation of video games can heavily depend on the educators’ attitudes towards its effectiveness. In this paper, we focused on establishing the attitudes of first-year higher education Pedagogy students towards video games before they begin working in their chosen field. Our findings showed that the male students, those who typically play video games more frequently and those who prefer to play video games with other people have better attitudes towards using video games in collaborative learning. These findings support the findings of previous studies (Bonanno & Kommers, 2008; Bourgonjon et al., 2011; Hainey et al., 2013; Martín, Basilotta & García-Valcárcel, 2017; Martín, García-Valcárcel & Basilotta, 2016), despite the different samples between these other studies (college students, parents, higher education students, in-service primary teachers, pre-service primary teachers) and our sample (higher education students of Pedagogy), and the various focuses of the other studies (attitude towards gaming, acceptance of digital game-based learning, perceptions and thoughts on the use of games in education) compared to the specific topic of our research (collaborative learning with video games, that it is the same topic of the two latest references but with different type of sample).

We believe our work contributes to the research on the attitudes of educators or future educators towards the use of video games in education, and these findings add to the growing body of literature on the understanding of educational agents’ attitudes towards this resource. However, given the small sample size, caution must be taken when generalising our findings. To further our research, we intend to obtain a broader sample from our University and from other universities and compare their opinions with people who are working as this kind of educator in different fields.

In conclusion, while video games can be useful in all educational fields where this kind of educator is working, the effective use of video games in collaborative learning depends heavily on the attitudes of educators towards this resource. Universities should therefore focus on giving future educators the opportunity to use video games and learn about their effective educational use, thus encouraging the formation of their positive attitudes towards them.

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VIDEO GAMES AND HIGHER EDUCATION STUDENTS FROM THE DEGREE IN PEDAGOGY: ATTITUDE TOWARDS COLLABORATIVE LEARNING WITH VIDEO GAMES AND OTHER RELATED VARIABLES.


Parallel Stories: Teachers and Facilitators in a Transformative Online Teacher Learning Community

Jing Li¹, Xiaohong Yang², and Cheryl J. Craig ³

¹Texas A & M University  
lijing.tamu@gmail.com  
²Hangzhou Normal University  
54ysh2005@163.com  
³Texas A & M University  
cheryljcraig@gmail.com

ABSTRACT
This research is a narrative study of an “organically lived” online teacher learning community in China. This study aims to explore how teachers’ “personal practical knowledge” is shaped by interactions between teachers and facilitators within the community. The parallel stories of two facilitators and two teachers are explored so as to understand the narratives from multiple lenses. The interpretation captures teacher knowledge changes and growth within the meaningful intersections between facilitators and teachers. Highlighted in the research findings are the dynamic connections between emotions, teachers’ identities in personal and school landscapes, and teachers’ fostering their best-loved selves.

KEYWORDS: personal practical knowledge; emotions; teacher identity; best-loved selves

1. INTRODUCTION
Teachers play a significant role in reforming classroom practices. Teacher learning community has been acknowledged as a pathway to promote teachers’ individual and collective capacity and improve student learning (van Es, 2012). The dominant narratives in the field of teacher learning community are unfolded via professional learning community, which usually takes the form of workshops or short-term courses. Many other studies have explored learning communities as small groups of teachers from the same grade level or in online settings. The subject content, teaching and curriculum are highlighted while teachers are considered as implementers of what was told by experts. Less has been explored regarding how a teacher learning community can integrate both teachers’ personal and professional landscapes and what changes might happen to those teachers within this type of community.
This narrative study is rooted in a learning community consisting of both facilitators and elementary teachers from different regions across China. Teachers within the community used narrative inquiry as the approach to reflectively explored both their personal and professional knowledge landscapes. Until January 2017, the members within this teacher learning community increased from 40 to 100 in one year, daily conversations continued between facilitators and teachers, and 312 reflective journals were shared within this community via Wechat, a most influential instant messaging application in China used by at least 550 hundred millions of people each month.

The narrative study started from exploring this community via parallel stories of two facilitators and two teachers, located the intersections where each individual participant’s narratives met, gained mutual growth in the online community and created “stories to live by” in their own personal and professional landscapes.

2. THEORETICAL FRAMEWORK

This study is underpinned by Clandinin’s experiential lens of viewing teacher knowledge as “personal practical knowledge” (1988, p. 25). Through digging into participants’ personal practical knowledge, the narrative inquiry was led to teacher knowledge community, teacher identity and what Schwab (1954/1978) named the “best-loved self” (p.124).

Personal practical knowledge lies “in a person’s experience, in the person’s present mind and body and in the person’s future plans and actions” (Clandinin, 1992, p. 125). The daily life contexts, both professional and personal, have impacts on what teachers know, how teachers know, and what teachers think they know.

The lens of teacher’s personal practical knowledge enabled Craig (1992) to dig deep into organically lived teacher learning communities where teachers formed groups with others, shared their raw stories, and made meanings of the stories together through conversations. This experiential view of teacher knowledge community aligns with Dewey’s (1938) notion that teacher knowledge is personally and socially funded rather than decontextualized. The practical views of teacher knowledge and teacher knowledge community equipped researchers the lens to see what knowledge was developed within the community in this study and how.

Teachers’ negotiations with others in contexts shape teachers’ ideas of “how to be”, “how to act” and “how to understand” (Sachs, 2005, p.15). Those negotiations include both personal and professional aspects of teachers’ lives. Connelly and Clandinin (1999) employed teacher narratives to express teacher’s understandings of identity change in a “changing professional knowledge
landscape” (p.120), which became an exemplar of how teacher knowledge and identities were interweaved with each other. Zembylas (2003) emphasized the emotions in teachers’ stories, encouraging or forbidden to experiences in particular contexts, may ‘expand or limit possibilities’ in teachers’ practices. In other words, the emotions produced from teachers’ knowing can be a double-edged sword for teacher’s identities. The dynamic relations between negotiations, identity shaping and emotions provided lenses for researchers to see how the dynamic interactions between participants evolve and what self-knowledge has been generated.

Beauchamp and Thomas (2009) consider “an understanding of self as a key component of teacher development, and therefore of the shaping of identity” (p. 178). Both teacher’s personal practical knowledge and teacher identity entail teachers’ agencies. Teachers’ agencies enable teachers to realize their own abilities to “move ideas forward, to reach goals or even to transform the context”.

Schwab weaved agency into the understanding of oneself and developed the concept “best-loved self” (1964). Schwab (1960/1978) emphasized that people are who they are not only because of how they are educated, but also because of the “choices their selves [sic] make” (p. 218). In this sense, teachers are beings with spaces to make their own choices, even when they live at intersections of policy, prescribed lessons and high-stakes assessment. Schwab created the concept “best-loved self” to express teachers being what they want to be.

Craig (2013) carried the concept best-loved self forward by arguing that the decisions made by teachers result not only from their awareness of the space they have, but also from their “efforts to self-educate” (2013, p. 267). With the self-knowledge, teachers create their “stories to live by” through fostering their best-loved selves. Furthermore, when teachers can teach toward their best-loved selves then they live in harmony with themselves; schools become places in which teachers may find their work and lives more fulfilling and sustainable.

3. METHODOLOGY.

The research employs narrative inquiry to explore experiences of facilitators and teachers within this community, in order to find how the personal practical knowledge, identity and best-loved self of both sides weaved together contributing to the teachers’ “stories to live by”. Underpinned by John Dewey’s (1938) experiential philosophy, Clandinin (1996) developed three dimensional narrative inquiry space as a framework to extract meaning from experiences.
Craig (1999) used “parallel stories” to explore how teacher’s experiences and stories of school “cast rays of meaning on each other” (p. 410). Paying attention to parallel stories of both facilitators and teachers helped researchers make meaning of the interactions between the two sides. It also relieved authors’ concern that the voice of one side might overpower that of the other side. The researchers collected narrative data from reflective journals and conversations posted on the community’s WeChat group page, interviews and archived documents.

Three tools for interpretation are: broadening, burrowing, and storying and restorying (Connelly & Clandinin, 1990). Broadening focuses on how the online learning community came into existence. Burrowing unfolds each participant’s experiences in their own real-world lives and participants’ interactions within the online learning community. Storying and restorying capture the changes happened to the participants over time and how those changes have impacted participants’ knowledge, identity and fostering their best loved selves.

4. NARRATIVE EXEMPLARS.

Before going to individual narrative exemplars, a broadening into the context of how the teacher learning community was formed is presented. Previously, Shui (participant facilitator of the study) and those teachers were tied together via an online professional development program. Shui was appointed as an expert to monitor teacher learning in the program. The overemphasis on measurable learning outcomes kept teachers physically busy in doing assignments and concurrently crushed teachers’ enthusiasm to be actively engaged in the program learning activities. Teachers showed up online less and less frequently. When Shui realized the lukewarm situation, she sought suggestions from Yuan (another participant facilitator), a professor from a normal university (university preparing teachers) in China. Shui and Yuan had collaborated on a teacher professional development research project via narrative inquiry approach. Both of them highly resonated with the way how narrative inquiry constructed new meanings, led to growth and shaped future actions. Therefore, they made the decision to employ narrative inquiry as a way to stimulate teacher learning. In order to launch their ideas with a small group of teachers first, they built a learning community with 40 volunteer elementary teachers from different subjects and grade levels.

Rather than formulating a way regarding how teachers should write narratives, the facilitators selected Parker Palmer’s *The Courage to Teach: Exploring the Inner Landscape of a Teacher’s Life* as the matchstick to rekindle teachers’ own experiences. Members of the community wrote reflections on their own experiences, which were connected with their resonance from the book.
chapters. Members shared their reflective journals within the community. Yuan, with a philosophy and teacher education research background in university, was expected to interact with teachers from a theoretical perspective. Shui, having won national award as an expert teacher of literacy, was expected to respond teachers' narratives from the practical perspective. Concurrently, teachers can respond each other on the WeChat group page.

**Shui**: Shui has been nationally recognized as an expert teacher of literacy at elementary level. Within her 30 years of being a teacher, she visited more than 2,000 students’ families, in order to know what children’s lives were like. In 2006, she was appointed as a principal of a special education school in a county while still being a teacher. She was a facilitator in the learning community. Shui not only responded teachers via the lens of teaching practices, but also via the connections between participants’ families and classrooms.

**Yuan**: Yuan had been a professor in a normal university. Yuan’s research interest area focused on Chinese education philosophy, teacher education and professional development. Yuan said he considered himself not only as a professor in class, but also a mentor outside of class. Yuan was invited by Shui into this learning community as a facilitator. Yuan responded teachers’ reflective journals by guiding them to find their own voices and to take a firmer stance of their own as developing beings.

**Jun**: Having graduated from a teacher college since 1987, Jun has been teaching as a literacy teacher at elementary school for 30 years. Jun met Shui for the first time when Shui, appointed as a teaching expert, went to his school to be a teaching model showing Jun and his colleagues how to teach. In the question and answer session, Jun questioned Shui about the effectiveness of this professional development activity on relieving teachers’ burnout at Chinese rural schools. Before answering Jun’s question, Shui made three bows on the stage to Jun and all the teachers expressing her gratitude that those teachers had sustained at the rural school even faced with challenges such as student poverty and high-stake test pressure. Shui’s respect helped Jun open his mind toward further inquiry into his own experiences. Jun has been actively writing reflective journals and responded to others within this learning community. Jun went through the stages of fear and angry with how the system perceived a teacher via technical rationality to the stage of being focused on fostering his best-loved self in spaces he could find.

**Bing**: Bing has been a literacy teacher for 27 years in a rural elementary school. He became the principal of that school in 2000 while still being a teacher. Although Bing had become a veteran teacher with almost three decades of experiences, he still did not consider himself as a master of teaching literacy. His school had 7 teachers and 37 students in total. “My teacher colleagues and
me have always wanted to improve our teaching but cannot find the way how.” Bing deeply reflected on his relationships with his father, his son, his students and his teacher colleagues. Shui and Yuan helped Bing make the connections between his personal and professional landscapes. Those connections relieved Bing from his previous confusions of not knowing how and create new “stories to live by” in his school landscape. Bing is not only integrating his personal being into his professional being as a teacher, but also doing the same for his colleague teachers.

5. IMPLICATIONS/DISCUSSION.

Personal and experiential part of participant teachers’ personal practical knowledge was suffocated in their own school landscapes. Bing had a view of teaching improvement as a pure accumulation of content knowledge and strategies. Bing was not fully aware of his own agency for his own development. In Jun’s case, Jun valued students’ well-being and actively made the decision to have his students had more sleeping time rather than learned for tests. However, under the push of Jun’s administrators, Jun’s attention was dragged to how he fought with the test-oriented system and to what extent he needed to deal with the pressure of becoming the one who “might make the school lag behind in test in the whole district”. Jun’s own personal life as being was less attended to.

The key component for this learning community is that facilitators helped community members develop connections between their selves and their teaching or administrator career. In Bing’s case, when his son was occupied with cell phone games and forgot his homework, Bing solved the tensions with his son by holding his impulsive to be angry and having conversations in a mutually respectful way. It was also in the family relation experience that Bing realized education was to guide people, not to control people by authority. Bing stepped into the classroom and was more aware of his own agency in making a lesson more motivated and supportive for students, rather than simply seeing why students were not meeting the goals he had set. As a son of a strict father, Bing was in the tension of easily being blamed by his father for what he did. Bing’s reflection of his own blaming students for their loose attitudes toward learning made him realize that he was doing what he was against to. Bing’s decision to love his dad anyway and to respect his son relieved the tensions between his family members and him, helped create a flow of Bing’s coherent identities as a father, son, teacher and principal. The coherence within identities fosters Bing’s best-loved self as teacher and principal.

The smooth flow of identities does not mean that everything should be in ideal conditions of participants’ lives. It means that when participants reflectively
interpreted who they were and are in family relationships, and figured out what they wanted to be, they were more likely to have a firm stance in claiming their agencies concerning what teachers they want to be. In Jun’s case, Jun made the choice of caring students’ well being, which aligned with what he wanted to be as a teacher. However, the emotions of fear, pressure and anger from Jun’s teaching landscape had Jun easily see the world with sharp judgmental eyes. Yuan and Shui’s guides Jun to see differences as opportunities for growth helped him to view the world with soft eyes, which is coherent with Jun’s image as a caring teacher for his students.

When participants found their best-loved selves, they were more likely to be certain about who they wanted to be and had a more empathetic understanding of why others were what they were. Participants’ best-loved selves not only guided them to know themselves as beings, but also put a humanistic lens on them when they looked at the world and others. Teachers’ blame for the useless of theory might cool down. Administrators’ blame for teachers’ lack of team spirit might go away. Teachers’ frustrations from pressured work might recover sooner. It was because teachers with their best-loved selves were always aware that they had spaces to nurture their own beings, to self-educate themselves in challenging situations and also to give others time to go through similar process as they did.

ACKNOWLEDGEMENTS
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How to improve understanding using 3D objects in eBooks and augmented reality

Rocio Ruiz Rodarte

Tecnológico de Monterrey
caruiz@itesm.mx

ABSTRACT
The development of educational materials for computer equipment and mobile devices, uses only a small fraction of the graphic possibilities that these devices allow today. Sometimes, they are digital or online versions of the same documents we used to teach with.

This paper describes work in progress about two educational materials for undergraduate students in which we use rotatable three-dimensional elements embedded in digital documents taking effectively advantage of the graphics capabilities of mobile devices. These elements are 3D models that have been incorporated into e-books to explain abstract concepts in subjects such as Physics and Descriptive Geometry. With them, we have verified that students understand almost instantly what the two-dimensional drawings stand for and what the projections represent in the planes corresponding to the view (top, front or lateral) of an object. The material described has also been highly appreciated by teachers of these two subjects.

The difficulty that students have to imagine the volume represented in the two-dimensional drawings is due to the fact that they have not yet fully acquired the cognitive structures of spatial thinking. In response to this circumstance, it was proposed the possibility of having three-dimensional objects that could be rotated within the didactic material.

The procedure developed for this project, allows the same 3D object file inserted into the eBook, to be uploaded to an augmented reality app to be displayed on a printed companion material. This advantage allowed us to develop two useful and attractive educational materials with the same work effort.

KEYWORDS: eBook, 3D, digital objects, augmented reality.

1. INTRODUCTION
Physics and descriptive geometry are sciences based on real objects, so it is imperative to understand the object in space and what vectors and lines represent. In practice, Descriptive Geometry is taught by alluding to the student's intuition in order to solve a certain exercise, however if the student fails to put his intuition into practice because he has not yet developed spatial
cognitive structures, comprehension is not performed. When this happens, the student only focuses on the sequential steps of a given drawing procedure, thus giving them an automatic solution.

In Physics, a vector is a mathematical concept that has both magnitude and direction relate to a coordinate system. This is difficult to represent in a two-dimensional drawing, either in a flat projection or in a perspective view. The result is confusing to the student who might not understand the array of vectors and forces presented to him not by the arrangement itself but by not understanding the location and direction of such vectors.

For students of Statics as well as for those of Descriptive Geometry, the concepts taught in these subjects are the foundation to acquire more complex knowledge in their professional careers. Therefore, comprehension as well as acquiring the cognitive skills necessary for this understanding to occur, are two essential problems of education.

Aware of that problem, we set ourselves the task of digitally constructing all the exercises of these two subjects, Physics/Statics and Descriptive Geometry, knowing that the technology would allow us to combine explanatory texts and rotatable digital objects within the same educational product: an eBook. These 3D movable objects allowed us to develop a new and different educational material for the different way of learning of today's students.

2. THEORETICAL FRAMEWORK

There are studies that explain the age when youngsters acquire three-dimensional cognitive abilities, however, the spatial reasoning skills including the ability to represent objects from multiple perspectives, still needs to be strengthened until it enables them to produce accurate representations of objects viewed on different projection planes.

It has been said that exposure to better computer graphics, virtual worlds and video games could have favored the spatial notion ability, but this is not necessarily reflected during courses. On the contrary. The familiarity that students have with these graphic elements, detached them, at least motivationally, from bi-dimensional educational methods.

As teacher of Industrial Design during thirteen years, it is clear to see that there is also a relationship between people's spatial thinking capacity and their ability to create. Students with greater cognitive capacity of three-dimensional thinking, make more complete and creative designs as they better conceptualize their ideas.

All educational materials that exercise and foster student’s three-dimensional reasoning skills will be reflected in an increase of their creativity, not only their understanding. The motivation as teachers should make us explore the best
visualization resources that technology allows and incorporate them in educational materials.

3. METHODOLOGY.

For the development of the projects described in this paper, we began by choosing the optimal material to cover the syllabus of each of the subjects. Once refined the scope and approach for each topic, we chose those exercises that would be built in 3D. At the same time, explanatory texts were written, technical drawings were made and images for the graphic interface were elaborated.

From the experience of previous projects, we defined the use of iBooks Author for the development of eBooks for iPad and the use of the app Aurasma for the augmented reality version. In part, this decision was made because the university where this project was carried out has classrooms equipped with iPads for students to work with.

Several CAD software were tested for the construction of 3D objects. The best results were obtained from 3ds Max. Additionally tests were carried out with Maya, Rhinoceros, Solid Works and AutoCAD. Several constructive methods were also tested (extrusion, loft, shell, etc.)

This stage of tests was deadening since it was intended to reach an optimal method before starting the production of the rest of the 3D objects.

Each 3d object went through the process of scaling, orienting, mapping, texturizing, lighting and exporting it, to be incorporated into the iBooks Author and the Aurasma service. Both programs require the 3D file in a .dae format so our interest was that the construction method would be useful for both programs. In this way, testing process ended until the file was able to work correctly in both applications, spinning it in the iBooks app for iPad and deploying through mobile devices from the Aurasma application.

Although some programs export to .dae format, the only useful files were obtained with the OpenCOLLADA (https://github.com/KhronosGroup/OpenCOLLADA/wiki/OpenCOLLADA-A-Tools) exporter, installing previously the plugin for the CAD program used, in our case 3Ds Max.

Once the digital construction process was determined, we began to elaborate the images that would be used to accompany the 3D models as projection planes. For Descriptive Geometry, this is imperative because students are expected to see how the object coincides with the projection on the front, top or lateral views. For that purpose, we used images in .jpg format applied as Bitmap in Standard material. Opacity reduction was applied to avoid obstructing the view of the 3D object while rotating it. A planar UVW map
was applied from the CAD modeler so that the object carried this information from its origin.
Both projects have dozens of 3D objects so it was very critical to decide from the beginning the nomenclature of the files, the associated images and the exercises to which they corresponded.
Creating an eBook with iBooks Author is a straightforward process. To facilitate its elaboration is advisable to have all the material previously in a Word document. It should be pointed out that the formulas required for the textual part of the Physics eBook were distorted many times. The files came from the software “Mathematica” and were exported from there as RTF to avoid any modification in the formulas. To avoid the mistakes that began to be detected and reduce the exhaustive revisions that could have ended in serious errors, many of the formulas were separated as images, capturing them from RTF document at the same time that the text was being copied to iBooks Author.
To embed 3d objects, iBooks Author has a function (3d widget) that incorporates them directly to the page where they need to be placed. They can lay next to the text to which they correspond and scale them as needed. The .dae file is dragged directly to the widget from its position on the hard disk where it must be stored next to the jpg images used to map it.
The use of the eBook during classes was done differently in Statics than in Descriptive Geometry according to the didactic needs of the teachers. The teacher of the Statics asked the three-dimensional objects to accompany the statements of problems that are given to students to solve after a theoretical class. In this way, students analyze the data from the enunciate and the 3D model to better understand what is asked in the exercise.
For her part, the geometry teacher requested the 3D material for the explanation of the concepts themselves. The teacher explains the theory and the purpose of drawing process and after a first approximation to the concepts, she presents the three-dimensional object to complete the explanation.
Both teachers noticed an increase in the concentration and understanding of the students, considering also that the behavior was so cordial that classes were easier to teach.
In addition to the eBook developed for iPads, a complementary material was designed for students who could view 3D objects on top of printed material with their own smartphones. This option is possible with augmented reality.

Augmented reality is very appealing to students. As many products use an application called Aurasma to display information through augmented reality, numerous students already have this application installed in their smartphones.
Aurasma allowed us to use the same 3D files that we had embedded into the eBook to upload them to their app. With this advantage, it was possible to multiply the benefit of the eBook, obtaining two equally attractive and educational products, developed with the same work effort.

Augmented reality (AR) consists of having a printed image that functions as a trigger for an action. In our case, the desired action is that a 3D object could appear superimposed over the printed image through a smartphone. The printed image acts as a recognition pattern for the AR app installed on the smartphone, which in our case is Aurasma.

The process for developing an AR product involves two elements: the action trigger image and the 3D object that will appear above it.

The images that will act as triggers must have a certain singularity that allows the application to distinguish them among many others. This trigger is uploaded to the Aurasma online application where it is associated with the element that will appear by augmented reality. In our case, that element is the .dae file that we embedded into the eBook.

In the case of Aurasma, .dae files cannot be uploaded alone as in iBooks Author. Each object is required to be uploaded as a compressed .tar file containing: the .dae file, the .jpg images used to map it and a “thumbnail.png” file of exactly 256 x 256 pixels in dimension which can be, i.e., the logo of the project.

We placed the triggers along with the printed exercises that were given to the students for their homework. In this way, homework became a source of expectation and stopped being a reason for stress.

4. IMPLICATIONS/DISCUSSION.

The eBook developed for the subject of Statics has been used for 3 years with undergraduate students of mechanical engineering. It is installed on the iPads that are part of a classroom equipment. This type of classroom is equipped with 30 iPads. They also have blackboards that have technological attributes that facilitate the taking of notes and the saving of the exercises written on the board. While these classrooms provide a modern environment to undergraduate subjects, teachers use mostly commercial apps. Our project was really the first product developed for these classroom type. Students have responded very favorably to the eBook and have expressed in polls their wishes for having more educational texts like this.

In the case of Descriptive Geometry, it was impossible to impart the subject in this type of classrooms because students require larger tables to draw. The problem was solved by projecting directly from the teacher’s iPad. Despite this
drawback, students of geometry have shown more interest than students of Statics. They are more willing to participate and rotate the three-dimensional figures themselves. Their comprehension is immediate and their interest in the class is very different from what students showed before starting to use the eBook. This semester is the first in which the descriptive geometry eBook has been used and undoubtedly has been a very useful tool for the teacher.

Figure 1: Similar exercise in printed Statics regular text books
Figure 2: Rotating 3D model within the eBook
Figure 3: Same object displaying on top of the printed version with augmented reality.

Figure 4: Intersection exercise where the 3D object remains movable next to explanatory text.
Figure 5: Same exercise in augmented reality version.

So far, teachers have not claimed to use regularly the augmented reality companion which has represented more novelty and attraction than an instrument of teaching. Having this extra material is a source of satisfaction but does not seem to maintain the concentration that produces the eBook.
How to improve understanding using 3D objects in eBooks and augmented reality

Results from student’s surveys:

<table>
<thead>
<tr>
<th>Descriptive Geometry Students (27)</th>
<th>yes</th>
<th>no</th>
<th>Indifferent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you consider it useful to have the text of the subject in eBook format for tablet?</td>
<td>87.5%</td>
<td>12.5%</td>
<td></td>
</tr>
<tr>
<td>Do you consider that there is an improvement in three-dimensional visualization?</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparing it with the diagrams and projection views with which the subject is traditionally taught?</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you consider that the manipulation of the models within the eBook, allowed you to better understand the configuration to which the exercise refers?</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would you like to have more teaching materials with rotatable 3D objects?</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Survey applied to students of descriptive geometry

<table>
<thead>
<tr>
<th>Statics Students (120)</th>
<th>yes</th>
<th>no</th>
<th>Indifferent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you consider useful to have the text of the subject in an eBook for iPad?</td>
<td>96%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Do you consider that there is an improvement in the visualization of 3D objects compared with the traditional diagrams of the printed book?</td>
<td>96%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Do you consider that the manipulation of the models within the eBook, allowed you to better understand what the problem asks?</td>
<td>80%</td>
<td>4%</td>
<td>16%</td>
</tr>
<tr>
<td>Would you like to have more teaching materials with rotatable 3D objects?</td>
<td>92%</td>
<td>8%</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Survey applied to students of Statics

5. CONCLUSIONS

- The incorporation of 3D rotatable objects interleaved with the text of the disciplines of Statics and Descriptive Geometry, has been decisive to achieve the understanding of the students of these two subjects.
- The development of the material in eBook format with these characteristics has given the teachers of these two subjects a unique tool to be explained effectively.
- From the surveys, the benefit of these materials is evident in the understanding and motivation of the students who have used them.
- For now, the use of supplementary material using augmented reality has not proven its didactic effectiveness but it has been a source of attraction that increases the expectation in these two subjects previously considered unappealing for students.
- The development of projects such as those described in this paper requires expertise in several areas. Obviously, knowledge of the subject from which the
new educational material is planned is indispensable; CAD modeling skills are required to digitally construct three-dimensional objects as well as gain experience in assembling documents in iBook Author and Aurasma. While this knowledge can be acquired by the same person, the development time could be reduced if work is done in an interdisciplinary team. This approach has been very helpful to us.

- Publishing in the Apple store is not difficult to accomplish. Special care must be taken to use only self-made material or images free of copyright. However, if the eBook has not been uploaded to the Apple Store, it can still be installed individually on students' iPads. The best option is the pre-installation in classrooms equipped with iPads.

- Investing in time, equipment and interdisciplinary work to create eBooks with these and more features described in this paper, is well-timed. According to studies and trends published by Gartner, e-text technology achieved in 2 years a consolidation level and it has reached its Plateau of Productivity. The benefits of this technology have been demonstrated and accepted by the community. The tools and methodologies to create them are becoming more stable as they enter their second and third generation. A growing number of publishers are more confident with risk reduction as user acceptance increases. Gartner's trends establish that approximately 20% of the target audience of electronic texts have adopted or are adopting the technology.

- In addition to eBook trends as an educational tool, the eBook market can become a rewarding option to encourage developers. The digital book market has grown every year compared to the printed book. Sales of US e-books are expected to outpace printed book sales by 2018, according to PricewaterhouseCoopers (PwC) studies published in The Economist.

- Since ISATT is not a conference of technology developers but rather of academics, this paper was written with the information of the technical process in such a way as to be more useful to the community of teachers attending the conference.

ACKNOWLEDGMENTS
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HOW TO IMPROVE UNDERSTANDING USING 3D OBJECTS IN EBOOKS AND AUGMENTED REALITY


The reflective professor's training and the use of technology in education

Tiago Bacciotti-Moreira

Universidade de Uberaba, Brazil
i_bacciotti@usal.es

ABSTRACT
This text’s purpose is to ponder how the new technologies should be seen by the reflective teacher and to discuss their application in the classroom and how it can be used in knowledge's transmission. In addition, it also argues about the process of teacher’s formation and the demand to include in continuing training the concern with the new technologies. In a world with constant scientific innovations and abrupt changes in the use of information, knowledge transmission changes are constant. People communicate faster and are always connected through technological tools increasingly present in modern life. This reflects in all fields of human knowledge as the means of production, work, art and, of course, education. Teachers must understand technology as a facilitating tools and as a improved way of interacting with the students. The control of power is with who detains the control of information. And the applied information, culminating in the construction of knowledge is valuable and liberating. In addition to this, the means of diffusion of knowledge may have improved, but we still have the teacher as a central role in education. The teacher’s formation will guide him also in the improvement of education from the perspective of a diffuser of knowledge and pedagogical science. He, as a central role in this process, must appropriate this knowledge and potentialize its use for education thus seeking technology as a information aggregator and with the potential to create learning situations inside and outside the classroom transcending the traditional method of teaching.

KEYWORDS: Teacher training, Technology, Reflective teacher.

1. INTRODUCTION
We live in a world with constant technological innovations and abrupt changes in the use of information. People communicate faster and are always connected through technological tools increasingly present in modern life. This reflects in all fields of human knowledge as the means of production, the means of work, art and also, of course, education. Professional life adapts to these technologies and in almost every field of activity people use them more and more for communication, study and work.
Thus, within the school, a democratic space of discussion and knowledge production should be sought, the application of technological tools with the aim of amplifying the entire teaching-learning process. The teacher, the central point in the process of student training, in order to be able to act in accordance with these new information and communication technologies must try to incorporate these in a transparent way into their work processes.

For this to happen and favor the work of the teacher is necessary the support of the institution and a whole work from the teacher's initial training and continuing education must be built. And this should be a concern of the institutions, for although we have such a rapid dissemination of information and by modern means it is still underutilized within the schools, becoming less desirable. The consolidation of these means should be sought by the school not as an empty form of being updated, but rather to seek this technological incorporation to improve the process of teaching learning and consequently the formation of the student. This will prepare the student for this new society enabling him to interact better with this technology.

It should be emphasized that this is also the responsibility of the teacher, who should reflect on the use and application of these technologies not forcing their use, but rather working in a transparent way.

2. METHODOLOGY
For the conception of the present study we searched through a literature review specialized subsidies for the correct discussion of the subject teacher training and the use of technologies. This research was carried out between May and July 2016 where selected books and scientific articles were consulted through searches in Scielo and Google Scholar databases. The Zotero software was used to categorize the sources and correct organization of bibliographic references.

The research in the cited databases was carried out from the key words and themes of the subject to be discussed in this article such as "teacher training", "classroom technology" and "reflective teacher". In addition, it was also sought to refer to the articles studied during the teacher training course.

As a criterion for the sources of the article, those who deal with the training of teachers in the broad sense and also the use of technology as a didactic tool of the teacher's work were chosen.

3. IMPLICATIONS/DISCUSSION.
It is possible for the teacher to adapt to ICTs and to make better use of these technologies in the classroom. For this to happen the teacher must travel more safely in the technological area. It should also be noted that technology should not be seen as capable of revolutionizing education, but rather as a powerful
aid and, if well used, capable of being applied in the classroom thus increasing the involvement of students with the object of study.

Nowadays the new media coming from the use of the internet as social networks are part of everyday life and are intertwined in our communication. These new technologies that used to be more obscure and difficult to access became popular in recent years, especially with the expansion of the Internet in Brazil, which began in 1990 and took a deep breath starting in 2000.

Today the control of power is with who owns the control of the information. And the applied information, culminating in Knowledge construction is valuable and liberating. The means of transmission of knowledge may have improved, but we still have the teacher as the central role in education. It does not matter if the teacher is present physically or only virtually geographically distant, but it is he who mediates the acquisition of knowledge his apprehension by the students.

And so, we enter a world transcending the boundaries of the school walls and the way to interact with this world goes beyond the television screen, but, especially, it takes place now through the screen of the computer, the tablet and the smartphone.

Now, one should not exaggerate to apply the latest technology in the classroom only to be "current" or to require that the presentations of its students be made only with Data show and using the (not so new) Prezi or even Microsoft Sway.

What, taking advantage of the metaphor, the amount of ideal fertilizer? There is no optimal amount of technology to be used, but the teacher who will use this technology needs to reflect on his classroom practice, be aware of the technologies but always seek to make use of a specific software or a well-aligned social network to what you are teaching. There is no room here for, for example, the forced use of a group on a social network simply by being present.

In this way, when applied correctly, and in a reflexive manner to be planned and applied by the teacher, technology can be an interesting way to help the teacher in his work. The reflective teacher should be able to apply the use of these new communication technologies transparently in the classroom.

Thus, they have one of the characteristics as being precisely the new existing social contexts and their constant transformation because, for students accustomed to this new speed and liquidity of information, the teacher must seek an adaptation in its way of work. This adaptation should not be in the sense of providing disconnected pieces of knowledge, ephemeral and superficial, but rather seek to find a way to awaken in its students, accustomed to this rapidity of appearance of information disappearing, to understand that
new information technologies and communication can also be used as an interesting way of working knowledge.

It is then necessary to analyze the reflexive teacher, but one should still be careful when dealing with the topic of formation, since many future teachers, according to Flores (Flores, 2010, p.98), have preconceived beliefs about what it is to become a teacher and the contact That they will have with teachers in their initial training will affect their understanding of what it is to be a teacher as well as their teaching practice. In the very process of initial formation, a space must be found for future teachers to express their beliefs and thus foster a reasoned discussion about the process of becoming a teacher. So, it may be here at this point of initial teacher training to instigate the orderly application of technology in teaching work.

This is how it will be possible to give a more critical voice to the students by empowering them as social agents and capable of acting in the history of their community and their country. And it is up to the educators through the language of possibility to bring to the students this vision making them true citizens endowed with knowledge.

Here we turn to the central point of concern of technology that is to avoid "conservative innovation", but rather, as we have already discussed, to apply this technology transparently or with a minimum of distance from the classroom. One should not also here, in a dialectical way, seek to reflect on this technology. The use of technology can be seen as a new culture, and as culture must be understood as an object. The man here is acting in his reality through a new media, but he does continue acting in his reality.

What is necessary is not to let this liquidity, speed and ephemerality of information disrupt the correct meaning of scientific knowledge. It is still possible to point out that classroom technology can also be a release tool. A student-built blog where improvements are reported at school or a journal of activities within the discipline is a good use for a tool and will help transcend the activity beyond the classroom.

And of course, all this practice and tendency to use technology can and should also be worked out in teacher training. Be it the teacher of initial training or continuing education.

We must observe the process of formation through multiple perspectives oriented, as educational process that is, to intentionality and to development and work on oneself. The training will guide the teacher also in the professionalization of education from the perspective of a diffuser of knowledge and pedagogical science. The pedagogical training thus goes hand in hand with the essentially technical knowledge of the area of action of the teacher. So it is important to emphasize that this training process should already seek to predict the use of technologies within the classroom and to
propose already a natural way of working ICTs and new media in an Education process allied to these new media.

According to Ferry (Ferry, 1983) we can evaluate the concept of teacher training in three dimensions: Initially the teacher is the one who needs to hold the technical knowledge necessary for his profession, that is, the relevant academic training (Administration, accounting sciences, engineering, etc.) and at the same time must also have pedagogical knowledge that will be instrumental to his work. In the second dimension, we have the formation of teachers as the training of professionals which will not always be reflected as a distinctive teaching. And the third dimension is the training of trainers who directly influence the formation of new teachers and professional practice.

In any case, teacher training is the process by which the teacher should be prepared pedagogically for the teaching practice. Let us remember that perhaps some of these teachers already come from a technical formation, that is, they are already graduates in their area of action and they only need a complementation for the pedagogical practice, but would this be the way?

This is where the preparation for new technologies fits right into the process of initial teacher training.

In short, from the amount of technology and new forms of communication the teacher is imputed the need to adapt to this reality and adapt it to education by seeking an amplification of his classroom, transcending the walls of the school. And for this he can seek the management of his classes at a distance with some activities to be developed by the students and transmitted electronically, for example. And seek, through reflection on their results, a better orientation of students to use the new technologies in a collaborative way with colleagues.

Now it is undoubtedly a unique condition that for this innovation and motivation to happen on the part of the teacher he must first have this self-motivation and the institution where he works also supports him. And this support must happen both from technological resources and laboratories and other necessary inputs, as well as giving the teacher conditions to take a more dynamic job, instigating him to use the technological resources of the school in its fullness.

Now it is interesting to note that these conditions are not always inherent to teachers. And in fact, it is not for most of them, since this failure begins in the deficient academic training in technology where teachers may not have had contact with technology in their training. Moreover, after entering a career, they become overloaded with their workload and end up not having enough time and/or resources to improve themselves technically.

It is also role of reflective teacher
The reflective teacher is the one who thinks about his profession, his continuous training and how he can act in a constructive and collaborative way with his students. The teacher can generate ideas and develop activities that lead his students to reflection according to Freire (Freire, 2005, p.15):

"One of the characteristics of a man is that he alone is a man. Only he is able to take distance from the world. Only man can distance himself from the object to admire it. By aiming or admiring - to admire whether it is taken here in the philosophical sense - men are able to act consciously on the objectified reality. It is precisely this, "human praxis," the indissoluble unity between my action and my reflection on the world "

In this way, the importance of reflection is placed here. Thus, occurs the distance of the abstract thought and approach of the concrete. The author also comments on the culture and the acquisition of this culture. He even calls the culture of "man's contribution to nature" which is the acquisition of human experience. And man becomes man from the construction of this experience creating culture and making history.

If all human activity involves thought and the teacher works with information as raw material and elaborates it scientifically into knowledge, it is important to emphasize that this transforming teacher role should be the objective of the teacher and not simply become a technician fulfilling goals of Learning and recording student developments.

It cannot be denied that the construction of this man, of this experience, can also be worked with new media, and it is the teacher's responsibility to attribute to students the responsibility for the use of technology. Thus, it is possible to give a more active voice to the learners during the learning activities involving them with the process and always treating them in an individualized way, understanding their origins, culture, history and particularities (Giroux, 1999).

This is how it will be possible to give a more critical voice to the students by empowering them as social agents and capable of acting in the history of their community and their country. And it is up to the educators through the language of possibility to bring to the students this vision making them true citizens endowed with knowledge and courage.

4. CONCLUSIONS

One cannot deny that we have a multitude of technological resources and these innovations cannot go unnoticed to school. However, it is not enough to exist and know the existence of such resources if we do not have teachers qualified to apply them in the classroom. From this it becomes necessary if a joint work begins in the formation of the teacher. The institution where he works should also be able to provide through a continuous training proposal
with a multifaceted team also composed of professionals in the field of
technology, grants for the teacher to be able to handle and apply these new
technologies in the process of teaching learning.
Perhaps we have students with a greater experience with technology than the
teachers themselves, but this should be avoided by instilling in teachers a
commitment to these technologies and proposing that content be developed
with the use of these technologies. Now it is up to the teacher to see them as
facilitating tools and as a better way of interacting with the students and among
the teachers themselves. Then we will have the education transposing the walls
of the school.
The teacher, as a central role, should appropriate this knowledge and enhance
its use for education, thus seeking technology as a knowledge aggregator and
with the potential to create learning situations inside and outside the classroom
transcending the traditional method of teaching.
Finally, for technology more and more times to be part of school life, it is also
up to the schools to modify their paradigm, not obliterating the use of
technology, but rather to see it as a liberating and constructive tool that
extends the possibilities of the teaching-learning process.

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What skills do I need to teach online? Researching experienced teacher views of essential knowledge and skills in online pedagogy as a foundation for designing professional development for novice teachers

Catherine McLoughlin¹, and Maria Northcote²

¹Australian Catholic University
1st Catherine.mcloughlin@acu.edu.au
²Avondale College
Maria.northcote@avondale.edu.au

ABSTRACT
As e-learning continues to dominate educational services globally, the domain of online pedagogy continues to expand, and teaching in online, blended and hybrid classrooms now considered an essential element of teacher education in the many parts of Europe, Canada and the US. As a result, the need for professional development of higher education teachers has never been greater. An important precursor to designing effective teacher preparation programs is to establish what novice teachers need to know and do to be successful in virtual teaching spaces. The idea that professional development for online teaching needs to focus on instructional and communicative skills, not just the technology skills, is reinforced throughout the literature. This large international qualitative study was designed to investigate and explore the perceptions of experienced teachers of the skills and knowledge deemed essential for online teaching and the capacities they perceive as most important for effective e-learning. Transformative learning theory formed the foundational theoretical framework for this study. The research problem identified was the lack of practitioner voices on the challenges that novice teachers experience in their transition to online teaching and the perspective changes that happen when they reconsider their pedagogies. Results indicate that teachers need to transform their pedagogy when teaching in virtual spaces and this includes new roles, modes of interaction and discovery of engaging ways of teaching online that increase connectivity and interaction with students. Implications for professional development and practice in higher education are examined.

KEYWORDS: e-learning, online, professional development, transformative learning, virtual environments

1. INTRODUCTION
The literature review is organized in order to provide insights into current thinking on online pedagogy and the challenges, skills and knowledge required to teach online. Online learning represents one of the key growth areas across
all areas in the adoption of web-based technology to provide educational services (Means, Toyama, Murphy, Bakia, & Jones, 2010). Teachers who are new to online pedagogy need to develop particular skills and face the challenges of how to best deliver learning experiences to their students in a medium which requires a distinctive pedagogy. A newcomer to online teaching where there is no co-presence has to rethink how to plan and to teach differently, sometimes described as “ways of thinking and practicing” (Entwistle, 2005), or “rules of engagement” (Shulman, 2005). Often the knowledge held by professionals is tacit or craft knowledge, and may be difficult to explicate (Otteson, 2007:41). The present research was motivated by the need to make explicit teacher thinking and description of the invisible understandings they have about online pedagogy. The study invited experienced teachers to reflect on, and articulate what effective online pedagogy consisted of in practice. The rationale for the study is the recognition that teaching online requires skills, pedagogies and specialised knowledge against a background of societal and technological change, though a slower pace of change in academic practice is common (Bonk, 2009; Picciano, Seaman, Shea & Swan, 2012). Though online and distance education continues to expand, there is limited consensus on the skills and knowledge required for effective online pedagogy, or the implications for practice arising from social media used in the service of learning (McLoughlin & Lee, 2010). Kreber & Kanuka (2006:121) comment that because … “results of studies showing that higher levels of learning are not easily achieved in online courses, there is an imperative to advance our understanding of how to facilitate effective online learning activities”. Hence this study sought to investigate perceptions experienced teachers’ of the competencies and knowledge required by novice teachers when making the transition to online teaching. The research questions were as follows:

1. What are experienced teachers’ views of the skills and knowledge required to teach effectively online?
2. What evidence is there that teachers undergo perspective transformation when they transition to online teaching?

2. THEORETICAL FRAMEWORK

Researchers have found that role change and transformation of practice is required when teaching online (Laat, Lally, Lipponen & Simons, 2007). A consistent theme in the literature is that the affordances of technology may require teachers to adopt new practices, pedagogies and mindsets (Coppola, 2002). The multimodal nature of virtual spaces mean that teachers need to change as “they can no longer rely upon sensory and expressive skills to establish and maintain relationships with students” (Major, 2010).
Transformative learning theory therefore provides a rich framework to analyse practitioner perspectives on how teaching online differs from face-to-face. The foundation and rationale for adopting Mezirow’s transformative learning theory (Mezirow, 1978; Mezirow & Associates, 2000) is the notion that learning and teaching in virtual environments requires rethinking of professional practice, and to a change or modification of teacher practice (Figure 1). Today, online teaching can occur asynchronously or synchronously and may be either fully online, blended with face-to-face teaching or combine elements of campus-based and hybrid forms of instruction. Teachers new to this mode may experience frustration, anxiety and confusion as they embark on a new learning journey as e-teachers. Going beyond content delivery, teachers must become a “guide on the side” who scaffolds and coaches, and often this demands a change in teachers’ skills and pedagogies, with a consequent rethinking or transformation of professional identity and role. There are several features of the online environment that require teachers to adopt new practices, to step back from their directive roles and instead become facilitators of learning. Thought leaders for this perspective are Garrison and Anderson’s (2003) ideas of creating immediacy through social and cognitive presence, and consideration of the learner as an active member of a community of practice (Rovai, 2002). Jewitt (2008) signals that online learning is different and argues that online pedagogy requires “a framework for re-thinking learning from a multimodal perspective in order to explore what real difference the use of new technology can make for learning” (p. 2). These perspectives indicate that eLearning is in constant change, and is dynamic, adapting to new social media and emerging social and educational constraints. Researchers tend to agree that virtual teaching spaces require a constructivist pedagogy, the development of distinct facilitation skills and new communicative practices (Guasch et al, 2010).

Figure 1: Mezirow’s (1978) stages of transformative learning
3. METHODOLOGY

This international study adopted a qualitative multiphase research methodology (Strauss & Corbin 1998) across three higher education settings, two in Australia and one in the USA. The research was designed to investigate the skills and concepts deemed essential for online teaching, especially focusing on those perceived as most important for novice online teachers, and whether teachers had undergone perspective transformation when adapting to online teaching. This international study was based in Australia and the US, with participants drawn from 58 university teachers from different disciplines who had experience in online teaching. Phase 1 of the data collection entailed teachers engaging in critical reflections written over a period of several months in journal format. Table 1 shows the number of participants from 2 Australian Universities and one US University.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Completed responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>US University 1</td>
<td>17</td>
</tr>
<tr>
<td>Australian University 1</td>
<td>15</td>
</tr>
<tr>
<td>Australian University 2</td>
<td>26</td>
</tr>
<tr>
<td>TOTAL</td>
<td>58</td>
</tr>
</tbody>
</table>

Table 1: Number of valid responses to the reflection questions based on teachers from 3 Universities (N=58)

Teachers were asked to reflect on and write responses to the following prompts:

- From your point of view as an online teacher, what have been the major concerns or challenges that have been uppermost in your mind over the past month, about online or blended learning and teaching and/or online course design?
- What typical questions, if any, have you asked, or have been meaning to ask other faculty or students, about online learning and teaching or online course design?
- What understandings, if any, have you developed over the past several months/years, about online learning and teaching or online course design?
- What successes/concerns if any, have you experienced over the past months, about online learning and teaching or online course design?

The second phase of data collection entailed semi-structured focus groups to achieve data triangulation. Ten Australian higher education teachers from 2
universities, all with over 6 years’ experience of online teaching and 5 American teachers participated in semi-structured focus groups. Questions asked were:

- What are the main challenges of teaching online?
- What skills are essential in online teaching contexts?
- What changes in pedagogy do you consider essential for teachers new to e-pedagogy?

Participants were informed about the goals of the study and the process followed the procedures of ethical data collection for both stages. Data collection took place from August to October 2016 and each focus group discussion lasted for approximately 60 minutes. During the focus groups, teachers were encouraged to talk openly about their experiences and views.

To analyse data from a transformative learning perspective, Mezirow’s theory (1991) was applied to determine whether experienced teachers had shown perspective transformation in their online pedagogy and if so, how this changed their skills and perspectives. This theoretical framework provides a deep and comprehensive way to understand how adult learners examine their beliefs when confronted with dilemmas and professional demands and then shift or change their views, expectations and beliefs to incorporate new ideas, values and practices (see Figure 1).

Steps taken for data analysis for each phase followed the qualitative data analysis approach of Miles & Huberman (1994) as a framework for coding and thematic analysis by following these steps:

1. **Data reduction**: the transcripts are coded and themes identified but the context and meaning are preserved
2. **Data display**: Analysis is progressed by using diagrams and charts
3. **Drawing conclusions**: This process is ongoing while coding and reduction take place. Table 1 shows initial codes identified in the reflective questions and in the focus groups.

4. **RESULTS**

Results for phase 1, based on reflective questions are displayed in Table 2. The responses to reflective journal questions from participants from three higher education institutions were analyzed for the purposes of identifying skills and concepts for online and how approaches to pedagogy were transformed when teaching online. Some of the participants were lecturers and some were academic developers. All had experience as online teachers and course designers within a tertiary education context. As well as providing data to
enable the research team to identify key skills that experienced online teachers developed, the data also provided evidence of the skills the participants developed and the challenges they faced.

<table>
<thead>
<tr>
<th>Challenges and concerns</th>
<th>Pedagogy</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Online teaching is different                                                          ➢ Need to humanize the learning environment, personalize interaction by using multimodal technologies</td>
<td>Challenges and changes when teaching online</td>
<td></td>
</tr>
<tr>
<td>➢ Lack of visual cues                                                                   ➢ Allow for choice and flexibility</td>
<td>Enhancing connection, humanizing the learning space and participation</td>
<td></td>
</tr>
<tr>
<td>➢ Online lacks the synergy of face-to-face teaching                                     ➢ Know the affordances of the technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Online teaching is not relational                                                     ➢ Provide help guides for students, be available to troubleshoot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Lack of interaction                                                                   ➢ Use discussion boards for peer interaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Strategies from face-to-face do not work online                                       ➢ Need to humanize the learning environment, personalize interaction by using multimodal technologies</td>
<td>Challenges and changes when teaching online</td>
<td></td>
</tr>
<tr>
<td>➢ Students lack confidence and skill using technology                                   ➢ Allow for choice and flexibility</td>
<td>Enhancing connection, humanizing the learning space and participation</td>
<td></td>
</tr>
<tr>
<td>➢ Students not familiar with virtual teaching                                           ➢ Know the affordances of the technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Students lack self-regulation skills                                                  ➢ Provide help guides for students, be available to troubleshoot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Students focus only on assessment, do not interact at deep level                      ➢ Use discussion boards for peer interaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Students not engaged in tasks                                                        ➢ Be clear about expectations about participation</td>
<td>Managing expectations</td>
<td></td>
</tr>
<tr>
<td>➢ Quality of interaction is limited-procedural mostly                                   ➢ Encourage self-regulation through choice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Students may have learning difficulties but remain invisible                          ➢ Use focused communication, learn to moderate discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Online teaching is not relational                                                     ➢ Personalise the learning environment by getting to know students</td>
<td>Building relationships and engaging students</td>
<td></td>
</tr>
<tr>
<td>➢ Difficult to know if students are progressing                                         ➢ Monitor student progress, provide individual feedback</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Less teacher control in online contexts, so monitoring learning can be challenging    ➢ Use narrated lectures to create teaching presence</td>
<td>Creating teacher presence both social and cognitive</td>
<td></td>
</tr>
<tr>
<td>➢ Time and workload to develop courses                                                  ➢ Provide audio briefings for assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Advance preparation is necessary                                                      ➢ Use focused communication, learn to moderate discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Need know-how is the best technologies for the pedagogical purpose                    ➢ Be online frequently and respond to emails</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Designing relevant and interesting activities</td>
<td>Designing and structuring the online program</td>
<td></td>
</tr>
<tr>
<td>➢ Creating advance organizers for students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Use multimodal resources to convey concepts and meet learning outcomes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Emerging codes and themes from phases 1 & 2 of data collection

According to the results in Table 3, the skills with the highest scores were technological skills for eLearning, student engagement and achieving high
quality teaching and learning. Each of these nine categories displayed indicators of questioning current assumptions and seeking skills to transform practice. This is reflected in comments such as

- How do I personalise teaching to suit who I am teaching?
- How do I best communicate with students?
- Online can be fragmented so how can I develop a sense of place and connectivity?
- How can I engage students more deeply in the learning process through quality interactive discussion forums?
- How might I enhance the quality of the feedback provided to distance students?

<table>
<thead>
<tr>
<th></th>
<th>Distinctive nature of online pedagogy</th>
<th>9</th>
<th>7</th>
<th>23</th>
<th>15</th>
<th>32 (59.3)</th>
<th>22 (40.7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Student engagement</td>
<td>11</td>
<td>6</td>
<td>27</td>
<td>11</td>
<td>38* (69.1)</td>
<td>17 (30.9)</td>
</tr>
<tr>
<td>3</td>
<td>Online communication</td>
<td>7</td>
<td>9</td>
<td>21</td>
<td>17</td>
<td>28 (51.9)</td>
<td>26 (48.1)</td>
</tr>
<tr>
<td>4</td>
<td>Relationships and getting to know students</td>
<td>9</td>
<td>8</td>
<td>26</td>
<td>12</td>
<td>35 (63.6)</td>
<td>20 (36.4)</td>
</tr>
<tr>
<td>5</td>
<td>Identity as a teacher</td>
<td>9</td>
<td>7</td>
<td>21</td>
<td>17</td>
<td>30 (55.6)</td>
<td>24 (44.4)</td>
</tr>
<tr>
<td>6</td>
<td>High quality learning and teaching</td>
<td>11</td>
<td>6</td>
<td>25</td>
<td>13</td>
<td>36 (65.5)*</td>
<td>19 (34.5)</td>
</tr>
<tr>
<td>7</td>
<td>Humanisation of the online environment</td>
<td>7</td>
<td>10</td>
<td>28</td>
<td>10</td>
<td>35 (63.6)</td>
<td>20 (36.4)</td>
</tr>
<tr>
<td>8</td>
<td>Sense of place, connection</td>
<td>6</td>
<td>10</td>
<td>22</td>
<td>16</td>
<td>28 (51.9)</td>
<td>26 (48.1)</td>
</tr>
<tr>
<td>9</td>
<td>Technical skills for effective e-learning</td>
<td>11</td>
<td>5</td>
<td>33</td>
<td>5</td>
<td>44* (81.5)</td>
<td>10 (218.5)</td>
</tr>
</tbody>
</table>

Table 3: Summary of responses to reflective questions

When participants were asked to respond with to a Likert-style scale from 1 (low) to 10 (high) about nine areas relating to online teaching concerns, the highest areas of concern were technological concerns (81.5% of participants reported concerns), student attrition (69.1% of participants reported concerns) and high quality learning (65.5% of participants reported concerns). Results for phase 2- Focus groups show that experienced staff expressed major concerns in engaging students and establishing connections through personalisation of the environment (Figure 2).
Comparing the data gathered from the teacher reflections (Stage 1) and the focus groups (Stage 2) common themes emerged. Both data sets (focus groups and reflective questions) showed teachers had undergone challenges and perspective transformation as they learned how to teach online. These transformations related to skills required to teach online, professional identity and the teacher’s role in a virtual environment. Figure 2 shows areas and skills where teachers revisited their practice and questioned their pedagogies. Engaging with and connecting with students were most common.

5. IMPLICATIONS/DISCUSSION
This paper focuses upon the results drawn from an international study where qualitative data gathered from reflective journals and focus groups discussion to investigate teacher perceptions of essential skills in online teaching and how the demands of virtual environments evoked professional transformation. The results and sample size are small and therefore limited, but nevertheless they add to the literature on changes in higher education teachers’ beliefs and practices required for online pedagogy. Some indicative statements of professional transformation are as follows:

- Teaching presence is different from on-campus presence, but both require interactive elements.
- Online teaching requires facilitating interaction, not simply presenting content.
WHAT SKILLS DO I NEED TO TEACH ONLINE? RESEARCHING EXPERIENCED TEACHER VIEWS OF ESSENTIAL KNOWLEDGE AND SKILLS IN ONLINE PEDAGOGY AS A FOUNDATION FOR DESIGNING PROFESSIONAL DEVELOPMENT FOR NOVICE TEACHERS

- So, in online learning, preparatory design is vital because of this fact: in face-to-face teaching, if a disaster happens, we can fix it, but online, you don’t even know that disasters are occurring!

6. CONCLUSIONS
In this research, experienced teachers voiced concerns, perspectives and insights regarding the challenges and skills required to teach online. There was agreement across both phases of data collection that online pedagogy was different, and that it pushed teachers with new ways of thinking about what effective e-pedagogy means. Overall, responses indicated that teachers had to rethink their identity and role significantly, acquire new skills and learn to cope with virtual students and online technologies. By adopting the theoretical lens of Mezirow’s transformative learning theory (Mezirow, 1978) data revealed that participants had taught online had undergone perspective transformation (Figure 1) and had to develop new communicative and moderation skills to engage and personalize teaching. While the results support the recommendations of Laat et al (2007) and Guasch et al (2010), they are limited. The principal practical contribution to research is the need to enable teachers to reflect on their learning experiences when commencing or planning to teach online and to provide targeted professional support based on identified needs. Further research on how practitioner perspectives change through teaching online would provide more insights into improved professional development to induct novice teachers into online pedagogy.

REFERENCES


WHAT SKILLS DO I NEED TO TEACH ONLINE? RESEARCHING EXPERIENCED TEACHER VIEWS OF ESSENTIAL KNOWLEDGE AND SKILLS IN ONLINE PEDAGOGY AS A FOUNDATION FOR DESIGNING PROFESSIONAL DEVELOPMENT FOR NOVICE TEACHERS


Collaborative work with Android Applications: research and practice

María Teresa González¹, Yuliet Coello², María José Cáceres³, José Chamoso⁴, Myriam Codes⁵

¹University of Salamanca
maite@usal.es
²Autonomy University of Yucatan
yulicoevi@gmail.com
³University of Salamanca
majocac@usal.es
⁴University of Salamanca
jchamoso@usal.es
⁵University of Salamanca
mcodes@usal.es

ABSTRACT
The rise of mobile devices in our society is determining certain daily practices and, consequently, has encouraged their incorporation in the classroom. However, in order to ensure effectiveness, the teacher must select the best way to organize teaching. Therefore, we have developed a research about the design, implementation and evaluation of teacher training worksheets in which students have worked collaboratively with Android applications as didactical resources. The project has a threefold purpose: the learning of certain mathematical contents, the use of teaching strategies that can be transferred to primary education and the analysis of the effectiveness of this teaching.

The project has consisted of the design of Android applications, as well as worksheets. These worksheets included the rules to use the apps and some tasks for the students to discuss in group. They must write their solutions when they reach an agreement that must be mathematically justified. There were three sessions in which students have worked in collaborative groups. The observation and analysis of a pair of different group productions in each session has been done according to different dimensions related to collaborative work: regulation, positive interdependence, construction of shared knowledge, controversies, group participation, cognitive level and self-evaluation.

One of our results was argumentation/discussion is essential for knowledge construction and the differences in learning between teams are closely related to their dynamic as a collaborative group. Android applications were useful as
didactical resources, although their use did not determine the knowledge construction completely.

KEYWORDS: mobile devices, Android applications, collaborative work, teaching strategies.

1. INTRODUCTION
Mobile devices (MD) are present in everyday life. They are revolutionizing the society and also affecting the educational field. It is a fact that at the moment a great part of the population has a MD in which people interact during almost all day. Because of this, its use in the classrooms has become more and more necessary.
The use of MD in the classroom, supported by some and criticized by others, involves several advantages and disadvantages; however, it is necessary for the teacher to have the appropriate training that allows him to adapt that instrument to the didactic planning and to have clear aims in terms of learning achievement.
Specifically, the utility of MD for education depends on its applications, from now on apps, that is, downloadable software specifically designed to perform a task, linked or not with academic activity. The challenge for the teacher is to select these apps for certain educational purposes, or to design their own to develop specific contents.
In this project apps were considered as didactical resources and they were used in the classroom combined with worksheets and collaborative groups to ensure that students acquire statistical knowledge at the same time they experiment with this methodology. During the sessions we have observed a pair of teams in each session, we have recorded the dialogs inside each group as they solve the tasks posed to them so as to know the knowledge construction in each team.

2. FRAMEWORK
Technological advances have affected all sectors of society and education is not an exception, so teachers are incorporating instruments such as computers or tablets in schools but this visual supports require students’ active participation to be effective (Torres, 2016) so the teaching methodology must be adequate to obtain good results: “A new repertoire of teaching techniques, instrumented by the available tools, has to be developed” (Drijvers, Doorman, Boon, Reed, and Gravemeijer, 2010, p. 214).
Recently, such visual supports are mobile devices (MD) with functions similar to those of a computer, such as processing, storage capacity and Internet
access, but the main feature they have is their portability. We can highlight among them the smartphones and also tablets.

To take advantage of the use of MDs in the classroom, it is necessary to recognize that MDs are artefacts that need to become instruments for teaching and learning, through the process called instrumental genesis. This process consists on the creation of schemes of use of the artefact (instrumentalization) and instrumented action (instrumentation), affecting both the artefact and the user (Rabardel, 1995, quoted by Artigue, 2015). An artefact is something that use a subject to perform a task. The artefact besides the subject abilities to use it to solve a task make an instrument so it can be conceived as the adaptation of the subject to a specific situation. These transformation requires technical knowledge about the tool and specific domain knowledge about the task, for example in this case, statistical knowledge. The instrumental genesis has to faces called instrumentalization and instrumentation and they are the product of a bilateral relation between the subject and the artefact. The instrumentalization is the result obtained when the subject gives a role to the artefact. The instrumentation is when the subject built schemes for performing a task with a tool. The first is linked to the tool and the second to the subject.

To use a tool in classroom to perform tasks, students must acquire techniques and, at the same time, must be able to assimilate concepts. Therefore, it is necessary to consider both the pragmatic value and the epistemic value of the instrument (Artigue, 2015), that is, to distinguish between its use and its intrinsic purpose.

In this case, MDs are didactical resources whose intrinsic purpose is to promote learning through their *apps*. The *apps* selected promote the learning of statistical concepts through experimentation, dialogue among students, generation of questions, reflection and analysis of the data obtained.

One way for promoting learning is working in group; a strategy that gives the subjects involved in these groups the opportunity to negotiate, discuss and constructively criticize the solution of a problem (Loureiro, Moreira & Pombo, 2010). Teamwork is beneficial to students thanks to its procedural nature: the knowledge construction is done in the way for solving a task, so students can learn one from another (Cramer, Marczynski and Tetewsky, 2010). The discussion and argumentation are essential in this interaction to reach all together the pretended knowledge.

Becerril (2011), who uses the term "cooperative learning" instead of "teamwork", mentions the most relevant psychoeducational processes related to this strategy: regulation through language, positive interdependence, shared knowledge building, controversies or conflicts between points of view, the
construction of shared representations, the structure of group participation, the cognitive level and the self-evaluation of the team (table 1).

<table>
<thead>
<tr>
<th>Psychoeducational process</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulation through language</td>
<td>Language use for the organization of the own actions and the colleagues ones.</td>
</tr>
<tr>
<td>Positive interdependence</td>
<td>The success of each member is linked to the success of the group and vice versa, that is, there is a close relationship between the actions of each team member.</td>
</tr>
<tr>
<td>Shared knowledge building</td>
<td>It is based on intersubjectivity, so it is necessary to understand and adopt the frame of reference of the other to define the situation.</td>
</tr>
<tr>
<td>Controversies or conflicts between points of view</td>
<td>Differences between points of views or learning levels.</td>
</tr>
<tr>
<td>Shared representations building</td>
<td>The collaboration allows the increase of similarities between the conceptual constructions of the members of a team.</td>
</tr>
<tr>
<td>Structure of group participation</td>
<td>Types of relationships that are established between team members.</td>
</tr>
<tr>
<td>Cognitive level</td>
<td>Forms in which students manipulate the knowledge and the level of processing they achieve.</td>
</tr>
<tr>
<td>Team self-evaluation</td>
<td>Continuous mechanism of reflection on the effectiveness of the equipment based on the proposed goals.</td>
</tr>
</tbody>
</table>

Table 1: Definitions of the psychoeducative process for cooperative learning

From above, teamwork is a strategy for teaching-learning that favours the communication and the exchange of knowledge among students, and this allows the construction of learning and the development of social skills. In this research we use the teamwork strategy as a tool to promote the learning of statistical contents, under the belief that the combination of the use of apps with this modality of work can lead to improvements in learning.

3. METHODOLOGY.

This research was divided into three phases called design, implementation and evaluation. During the first phase we design worksheets to develop statistical knowledge together with Android apps as teaching-learning tools (Table 2).

<table>
<thead>
<tr>
<th>Content</th>
<th>Worksheet</th>
<th>App Android</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequencies of a random experiment</td>
<td>“Coin”</td>
<td>Coin flip</td>
</tr>
<tr>
<td>Non-likable events</td>
<td>“Dice”</td>
<td>Dice</td>
</tr>
<tr>
<td>Randomness</td>
<td>“Colours”</td>
<td>Colours</td>
</tr>
<tr>
<td>Estimating the size of a population from samples</td>
<td>“Penguins”</td>
<td>Penguins</td>
</tr>
</tbody>
</table>

Table 2: Relation between the statistical contents and the Android apps Android used
The worksheets and the apps "Colours" and "Penguins" apps were designed (Martín and González, 2015) to allow simulations about randomness and the estimation of the size of a population from samples. These worksheets included situations that were a challenge to the students so they must experiment using the app. The worksheet is like a guide for the students to perform the experiment and through this process they must answer some questions with the objective to build knowledge (table 2).

As part of the design, we choose certain techniques to gather information from teamwork experiences: observation and audio recording. The instruments used for these techniques were an observation guide and a guide for analysis of the audio recorded data, elaborated using the psychoeducational processes of cooperative learning by Becerril.

The second phase consisted of implementing the worksheets and applying the techniques with the corresponding instruments. This research was carried out with a group of students (group A) of the fourth year of the Degree in Primary Education of the Faculty of Education of the University of Salamanca (USAL). This group consists of 49 students whose age range goes between 21 and 23 years.

The implementation phase was developed in three sessions lasting two hours each. In the first session, the students use "Colours" app in teams of four to five members in a regular classroom. The second session, with "Coin" and "Dice" apps, was developed in a computer classroom and students worked in pairs; each pair has a computer. In the third session, the students use "Penguins" app in teams of four to five members in a regular classroom. In each session, two work teams were observed at the same time that the audio was recorded.

The third phase, evaluation of the project, consisted in transcribing the audio recordings and analysing the information collected to know the mechanisms used in the teamwork and the processes of knowledge construction developed by the students. Since the audio recording and observation are complemented to obtain information regarding the teamwork experience during the session, the analysis was performed together.

The dimensions for the analysis were the ones of the psychoeducational processes (Becerril, 2011). For the analysis we make a table; in one column we specified the dimensions from the theory (psychoeducational processes) and in the other the observations or quotations of the audio that correspond to each dimension. Finally we obtained the corresponding inferences.
4. RESULTS.

In the first session, the "Colours" app was functional for the students because they used it without problems and did not present technical failures; however, despite the benefits of the Android app for the work of statistical content, only one of the teams managed to handle correctly the concept of randomness.

In both teams, during the first session, there were positive interdependence, they used the same types of conversation and the same discursive strategies, and when faced with conflicts ended with some agreements. The difference between the two groups laid in the presence of regulation through language and the domain of the argumentative participation mode in one of the teams, and the absence of such regulation and mastery of the collaborative participation mode in the other.

The "Coin flip" app, from the second session, was visually attractive and captivating for students thanks to various tools it offers such as currency selection, screen rotation and audio. The information it provided was clear, so there were no difficulties for collecting data with this app; however, due to the delay in the coin spinning, one of the couples decided not to perform all the simulations requested, so they did not reach the objective and the app had not function as a didactical resource. What concerns to the "Dice" app, it was simple to use and also offered the option of audio and to throw the dice when shaking the mobile, captivating students.

The two pairs analysed in this second session shown the presence of regulation through the language, the predominance of the work in collaborative mode, the absence of arguments and the dialogue only centred on technical aspects and not on statistical contents; in addition, neither of the two observed pairs had faithfully performed the simulations. The result of the work of these pairs was that none of the couples achieved an understanding of the concepts of probability contained in the practice.

In the third session it turned out that the app "Penguins" was intuitive and did not require previous training for its use. It was also useful and functional for the stated purpose because it allowed both teams to obtain the necessary data for the activity, although in one case the knowledge construction was not completely achieved.

In one of the teams observed in the third session, some discussions and a conflictive participation arose and the strategies of argumentation and negotiation were omitted, which resulted in differences between the components of the team in the construction of representations and in the learning. This team generated distributed cognition and had problems with statistical concepts, while the other team created shared representations in common agreement and achieved the learning objectives of the session.
5. IMPLICATIONS/DISCUSSION.
Throughout the three sessions the two work teams observed in each one showed a lack of use of metacognitive strategies and an absence of establishing shared goals and therefore there is no positive interdependence between them. In spite of the above, in some cases the students achieved the learning objectives. This does not underestimate the importance of the use of metacognitive strategies and the existence of interdependence of goals, but suggests that it is not essential for the construction of knowledge in collaborative work.

Regulation through language, shared knowledge building, solution of conflicts, group participation structure, positive interdependence, shared knowledge construction, cognitive level and self-assessment were observed although they were achieved with different levels in each team. Therefore, it is possible to conclude that the learning differences, in the same session, are closely related to the dynamics of each teamwork.

On the other hand, some teams have not full achieved the statistical concepts. The reasons are diverse: in the second session this may be due to the fact that the teams did not perform correctly the simulations through the apps, and in the third session may be directly related to the not well solved conflicts and the discussions within a team.

Among the teams that demonstrated the mastery on statistical concepts at the end of the research is common the use of argumentative strategies, which could be an indicator that argumentation is essential for the construction of knowledge.

The way to use Android apps were similar on all devices; in fact, the teams observed in the second session that coincided by not using the apps for the simulation, didn’t achieve the learning objective.

Despite this, it is not possible to make the apps responsible for not reaching the aims because during the group interaction the absence of arguments were also identified. It is important to emphasize some recommendations (to locate the more agile version of "Coin flip" and emphasize the selection of two dice, in the case of "Dice"), to obtain the expected learning results, although the absence of arguments in the collaborative work would have also influenced.

6. CONCLUSIONS
The use of the apps were used as an additional tool for learning, they were not the central axis of the sessions and they weren’t a determining factor for the achievement of the objectives. The apps were combined with worksheets and collaborative work to build statistical knowledge and to show future teachers
how to use a MD in classroom. This combination make the apps to become instruments (Artigue, 2015). Some teams used correctly the apps but didn’t achieve the objectives so they didn’t make the process of instrumentation. This shows that apps do not ensure the construction of learning, but they can facilitate the process.

AKNOWLEDGES

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The use of video during professional experience for initial teacher education

Michael Cavanagh

Macquarie University
michael.cavanagh@mq.edu.au

ABSTRACT
Nine triads, comprising a pre-service teacher (PST), supervising teacher and university advisor participated in the study. Each week during a four-week professional experience placement, PSTs identified a ‘puzzle of practice’ and used smartphones to video a five-minute excerpt from one of their lessons. They annotated their video excerpt with time-stamped comments and uploaded it to a secured website. There, the supervising teacher and university advisor viewed the video, read the annotations, and provided feedback. Annotations were coded to identify the depth of reflection using four categories: Descriptive; Evaluative; Reflective; Imaginative. Participants also completed a survey about their experiences. Results indicate that the process helped PSTs to reflect on classroom practice and provided opportunities for professional dialogue.

KEYWORDS: video, reflection, professional experience, teacher education.

1. INTRODUCTION
The development of PSTs’ reflective practice is considered crucial for teacher education programs (Alger, 2006). Reflection allows PSTs to shift from a preoccupation with self to consider student learning (Davis, 2006). However, before PSTs can begin to reflect on their classroom practice, they must first learn to take note of what is occurring as they teach so they can separate events of relatively minor importance from more salient elements of a lesson. As Sherin, Russ, and Colestock (2011, p. 79) note, “A crucial part of teaching, then, involves observing the classroom and choosing to make sense of those aspects of the class that are pedagogically relevant.” In doing so, PSTs can advance from general descriptions of lesson activities to begin analysing causes and reimagining future actions (Levin, Hammer, & Coffey, 2009).

Studies have also shown that, despite the challenges associated with shifting from their own actions to consider student learning outcomes, PSTs can learn to become more reflective practitioners (Spitzer, Phelps, Beyers, Johnson, & Sieminski, 2011). PSTs who develop a capacity for reflective thinking become more aware of the assumptions on which their teaching decisions and actions...
are based (Yost, Sentner, & Forlenza-Bailey, 2000) and are better able to make connections between theory and practice (Ward & McCotter, 2004).

One means of becoming more reflective is through the use of video. Video has been used successfully to support reflection in initial teacher education (Kong, Shroff, & Hung, 2009) and by more experienced teachers (van Es, Tunney, Goldsmith, & Seago, 2014). Video allows PSTs to analyse their practice by creating a space between the classroom actions and their reflections on them (van Es & Sherin, 2002). Video affords the opportunity to view the lesson multiple times so patterns of practice can emerge (Yerrick, Ross, & Molebash, 2005). Chung and van Es (2014) found that video supported PSTs in analysing their teaching practice and helped them develop skills in making sense of learning and teaching. Danielowich (2014) reported how sharing videos with peers exposed PSTs to a range of different interpretations of their classroom practice, broadening their ideas about teaching.

Video may also help in assessment of PSTs and to provide feedback (Masats & Dooly, 2011). Video allows supervisors to notice aspects of the class which they might not have remembered after observing the lesson ‘live’ (Rich & Hannafin, 2009). Kleinknecht and Gröschner (2016) found that video feedback from peers and academics helped expand PSTs’ ability for self-reflection and provided more balanced comments than PSTs’ self-reflections, which tended to be more critical appraisals of their lessons.

This paper reports how video excerpts were used during a professional experience placement for PSTs to reflect on practice and receive feedback. The research questions are: What are the differences in levels of reflection for PSTs, supervising teachers and university advisors? How do PSTs, supervising teachers and university advisors regard the video process as a tool for self-reflection and provision of feedback?

2. THEORETICAL FRAMEWORK

Van Es and Sherin (2002) developed a Learning to Notice Framework incorporating three key elements: teachers identify important aspects of a teaching situation (describing); they apply knowledge of the context to analyse it (evaluating); and they link the specific experience and their thinking about it to general principles about learning and teaching (interpreting). Noticing and reflecting on classroom events are enhanced when accompanied by a willingness to imagine alternatives that can lead to changes in future actions (Jacobs, Lamb, & Philipp, 2010). Lane, McMaster, Adnum, and Cavanagh (2014) drew on these ideas to develop a four-level framework to describe the depth of reflection: D1–Descriptive, D2–Evaluative, R1–Reflective and R2–Imaginative. The levels are described with examples from the study in Table 1.
The use of video during professional experience for initial teacher education

<table>
<thead>
<tr>
<th>Level</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1–Descriptive:</td>
<td>“The students were all paying attention at the start of the lesson and no one was calling out”</td>
</tr>
<tr>
<td>Purely descriptive responses</td>
<td></td>
</tr>
<tr>
<td>D2–Evaluative:</td>
<td>“I was very impressed in the way you motivated the students during the lesson. They were all engaged and participating”</td>
</tr>
<tr>
<td>Descriptive responses containing an evaluative element</td>
<td></td>
</tr>
<tr>
<td>R1–Reflective:</td>
<td>“You could slow down your task explanation as some students respond to visual rather than auditory cues – that is, they need to see something rather than, or as well as, hear it”</td>
</tr>
<tr>
<td>Responses which make a judgement and justify it</td>
<td></td>
</tr>
<tr>
<td>R2–Imaginative:</td>
<td>“After listening to my supervisor’s comments, one improvement I definitely could have implemented would be to set firmer time scales on the different parts of the lesson”</td>
</tr>
<tr>
<td>Responses that explain possible causes and/or imagine future actions</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Four levels of reflection and examples

3. METHODOLOGY.
3.1. Participants and context
Participants for this project were nine triads, each comprising a PST (five primary and four secondary; eight female and one female), the supervising teacher (n=9) and a university advisor (n=5; some advisors were allocated to more than one triad). Five PSTs were undertaking their first professional experience placement and four were undertaking their final placement. A half-day Information Session was held prior to the start of the placement to explain the process of recording, annotating, uploading and sharing video excerpts and to outline the requirements for the project; however, it was held during a school vacation period and not all supervising teachers were able to attend.

During each week of the four-week placement, PSTs identified a ‘puzzle of practice’ and video-recorded a short, related excerpt of approximately five to eight minutes in length from a lesson of their choice. The excerpt was annotated by the PST and uploaded to a secure website where it could be viewed by the PST, the supervising teacher and the university advisor. Supervisors and advisors added their annotations with feedback for the PST, who could make further annotations. Following Danielowich (2014), no suggestions were given to participants about how they should reflect or provide feedback to lessen the likelihood of participants reporting what they believed were the ‘right’ responses.

3.2. Data collection and analysis
Upon completion of the placement, 47 video clips (some PSTs chose to create more than the required four videos) incorporating 777 annotations were available for analysis. The author and a research assistant independently coded
67 annotations from four randomly selected videos using the four levels of reflection developed by Lane et al. (2014) (see Table 1) and agreed in 42 instances (63%). After discussing the discrepancies, 32 annotations from four different videos were independently coded, with agreement in 29 instances (91%). Discrepancies were discussed and the remaining coding was then completed by the research assistant.

All participants also completed a written survey designed to investigate their experiences using the videos for self-reflection or feedback. The survey questions varied slightly for PSTs, supervising teachers and university advisors. Qualitative survey data were analysed by the research assistant through a process of reflexive iteration (Srivasta, 2009), an inductive approach which involves revisiting the data multiple time to identify emerging themes.

4. RESULTS.
4.1. Annotations

Table 2 shows the number and percentage of annotations for the four levels of reflection for PSTs, supervising teachers and university advisors. Overall, D–2 Evaluative annotations occurred about twice as often as the other three categories. This was particularly so for supervising teachers and university advisors, highlighting how they are accustomed to assessing PSTs’ classroom practice and encouraging PSTs by positively evaluating their efforts. University advisors made more annotations than PSTs or supervising teachers, perhaps because the university advisors are not in schools full-time. Some supervising teachers did not attend the Information Session at the start of the project and they typically wrote fewer annotations. This emphasises the importance of all participants understanding the rationale for the project and having a sense of ownership of the process.

<table>
<thead>
<tr>
<th>Role</th>
<th>D1</th>
<th>D2</th>
<th>R1</th>
<th>R2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-service Teacher</td>
<td>82 (40%)</td>
<td>38 (18%)</td>
<td>50 (24%)</td>
<td>36 (17%)</td>
<td>206</td>
</tr>
<tr>
<td>Supervising Teacher</td>
<td>15 (9%)</td>
<td>62 (39%)</td>
<td>41 (26%)</td>
<td>40 (25%)</td>
<td>158</td>
</tr>
<tr>
<td>University advisor</td>
<td>77 (19%)</td>
<td>192 (46%)</td>
<td>69 (17%)</td>
<td>75 (18%)</td>
<td>413</td>
</tr>
<tr>
<td>Total</td>
<td>174 (22%)</td>
<td>292 (38%)</td>
<td>160 (21%)</td>
<td>151 (19%)</td>
<td>777</td>
</tr>
</tbody>
</table>

Table 2: Participants’ annotations coded according to the four levels of reflection

PSTs’ annotations were most often at the D1–Descriptive level which reflects previous research findings (e.g., Chung & van Es, 2014) about their propensity to describe lesson events rather than analyse them. This relatively high proportion of D1 annotations might also indicate that the lack of guidance for
PSTs on how to reflect on classroom practice suggested by Danielowich (2014) was unsuccessful. It might have been better to provide PSTs with examples of descriptive and reflective comments to highlight the differences between them. Even so, just under half of the PSTs annotations were at the higher R1–Reflective and R2–Imaginative levels which compares favourably with their supervisors.

4.2. Survey data

PSTs, although initially anxious about ‘performing’ felt that the use of video allowed them to reflect on their teaching styles since it enabled them to: scrutinise the language they used when addressing students; examine the amount of student participation; consider the effectiveness of their questioning techniques; examine student interaction in peripheral areas of the room; and acknowledge their professional strengths and weaknesses.

I have truly learned so much in this process! I initially was quite reluctant to be a part of this program but I can honestly say that I think that I learnt a lot. Through critiquing my own practice, I have been able to re-watch my lessons through the students’ point of view. [PST]

One PST commented that she was able to reflect on and address issues based on actual information, rather than “feelings” that she had about the lesson. She was able to see exactly what was needed in terms of classroom management, where lines of questioning did/did not work and to address these issues intelligently rather than emotionally. Another PST wrote that the video gave her confidence in situations where she previously thought she had explained something poorly; watching the video helped her realise that her classroom practice was better than she had originally thought. Hence the video process can enable PSTs to adopt a more balanced view of practice, even without the peer or expert feedback reported by Kleinknecht and Gröschner (2016).

Supervising teachers regarded the video footage as a “great reflection tool” for PSTs and felt it provided them with a more objective and fair means of PST assessment. Adding comments alongside the video clips allowed both the supervising teacher and university advisor to review and comment on particular teaching moments with the PST. This enabled professional dialogue among triad members who were viewing the clips asynchronously from different locations.

The real time commentary/time stamped comments were enormously useful as a genuine conversation amongst the three voices. Real-time, visual footage with
comments made at the point of response make a very powerful feedback loop for both student and supervisor. [Supervising teacher]

Supervisors and advisors also believed the video process gave PSTs time to consider their feedback and allowed PSTs to then upload additional questions or comments after they had been fully considered. Supervising teachers reported that PSTs would often request additional advice in person the following day to clarify how they could implement the feedback suggestions into their next lesson. Overall, supervisors and advisors reported that they felt the video process enhanced their feedback to PSTs.

Being able to see the student reflections meant that I was able to not only comment on the positives and areas for further development but also respond to her thoughts and feelings. I think this made the feedback more worthwhile and thought out. [Supervising teacher]

Consistent with the findings of Rich and Hannafin (2009), supervising and advisors did not need to rely on or report only what they remembered from the lesson. They could re-watch and analyse the segments multiple times to further elaborate on a point. In addition, supervisors noted that analysing the video at a later time allowed them to concentrate on the unfolding lesson. They did not need to make detailed notes during the lesson for fear of potentially missing important lesson moments. The use of video also meant that supervisors

I feel it is more effective than a post class feedback session as this allows further viewing and critique by both the education student and the supervising teacher. This also allows for both the education student and superior to view multiple elements of the lesson to provide additional feedback in regards to classroom practice. [University advisor]

Supervisors and advisors reported that PSTs became equal partners in the process of professional dialogue.

The fact that the student, university advisor and school supervisor could all comment, contribute and make suggestions was incredibly useful and created a feeling of collaboration rather than assessment. [University advisor]

The triads operated with varying degrees of success. In some, the communication channels were less effective; there were infrequent postings and sometimes annotations received no response. These triad members either felt that they had little say in their involvement in the project or preferred not to change their usual practices for professional experience. At times, there were technological problems which resulted in some PSTs feeling disengaged,
stressed, and overwhelmed by the process. These PSTs and their supervising teachers felt that they were dedicating too much time to videoing rather than lesson planning or classroom teaching.

Communication was much harder to initiate and maintain if the supervising teacher missed the Information Session. In such cases, there was resistance from supervising teachers to complete the set weekly tasks and PSTs felt less supported when limited feedback was provided. Overall, the success of the triad was dependent on the willingness of the team members to do the extra work. As one supervising teacher commented, “While it was a slight extra burden on my time, the value of the reflection was more than worth it.”

5. CONCLUSION

The study has shown some benefits in the video process for self-reflection and feedback during professional experience. The process encouraged professional dialogue among many participants and was seen as largely beneficial to PSTs’ professional growth. These benefits are maximised if all participants understand the requirements of the project, the technology functions properly and if examples are provided so that participants recognise the different levels of reflection.

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Knowledge pills skills as a resource of Learning in Blended Learning

David Caballero Franco¹, Margarita Hernández Sánchez², Judith Martín Lucas³, and Sara Serrate González⁴

¹Universidad de Salamanca
caballero@usal.es
²Universidad de Salamanca
mgsa@usal.es
³Universidad de Salamanca
judithmartin@usal.es
⁴Universidad de Salamanca
sarasg@usal.es

ABSTRACT
The advent of new technologies together with a society characterized by immediacy, volatility and constant change has transformed the education scene in the last few years. These changes have to consider the policy framework in higher education recent reforms. Thus, forces us to reconsider our methodologies, pedagogical processes and educational contents, in an attempt to guarantee the access to knowledge in a systematic way and give the maximum effect to Learning-knowledge processes.

One of the latest training practises inside the field of high education, is the Blended Learning, which makes use of technology resources whether on a face-to-face or on-line lessons, in order to facilitate the learning process.

In response to the student’s role as the main agent in learning process, we focus on one of the tools that gives us the answer to the request of lifelong learning and allowing us to adapt to new demands of the new time-space scenery of learning, the knowledge pills.

KEYWORDS: Knowledge Pills, Blended Learning, High Education

1. INTRODUCTION
In recent years, higher education has had to adapt to new changes in the European Higher Education Area. This reform has affected in both a curricular and an educational level (Díez, Alonso, Verdugo et al., 2011; Runtel & Lorente, 2014).

Those changes affect education, and require new methodologies in learning-knowledge mediated by virtual environments, and the new phenomena about the teacher’s role, as competence manager (Muñoz, 2014).
Knowledge-based society requires more flexible structures in higher education (Hinojo, Aznar & Cárce, 2009), being able to adapt to the new changes in technologies (Nogueira, Pessoa & Gallego, 2015). Blended Learning, is one of the most innovative educational practices introduced in the recent years in the educational field, because it makes the formative process easier through the use of technology resources both in a face-to-face and online (Bartolomé, 2004; Casamayor, 2008; Martín, 2014; Martín, García & Muñoz, 2014). Along with this formative process, are new resources, they are all related to New Technologies and with the objective of meeting the educational demands, characterized by going through the informational time and space barrier, such as, discussion forum, interactive test, blogs, etc., emphasizing knowledge pills by their versatility and appeal due to audio-visual material, which has advantages in learning, increasing effectiveness in the memorizing process (Bustamante, Vicente, Antoñazas, Salavera, 2016).

2. NEW FORMS OF TRAINING. BLENDED LEARNING.
Blended Learning is a combined learning model able to merge pedagogical and technological elements (Martín, 2014), as a result of innovation and development in technologies in the past decade. A concept that allows us to combine all the best about computer education with the face-to-face teaching model (Hinojo, et al., 2009; Pinto, Cruz & Palacios, 2014; Shabrina & Aziah, 2015) offering multiple choices in the online and face-to-face process and the variety of environments where it can be used (Llorente, 2008).

This new model, apart from giving us the chance to combine face-to-face and online learning, enables a learning experience closer to the interest and capability of students, because of all the knowledge available to them, they can choose between a wide variety. Also, adopting this model implies a constant update of the contents, adapting to reality and the student’s requirements. It breaks time and space barriers, and, finally, use lots of multimedia resources (text, audio, video, pictures, hyperlinks...).

This way, Blended Learning allows us to generate more flexibility in learning, and gives the student more responsibilities and empowerment in the learning-knowledge system (Hinojo, et al., 2009; Pinto, Cruz & Palacios, 2014; Salazar & Martín, 2014).

However, we can’t forget that Blended Learning is still in development, our knowledge-based society and its constant evolution, forced this model to adapt to the new educational fields.

Up until now, this model has been rapidly extended all over the world, being part of both the public and private sector. We can find a wide variety of
researches in Blended Learning practises, made by different researches in different universities all over the world. Those researches show different examples in Graduate studies in different knowledge fields (Bustamante, Larraz, Vicente et al., 2016; Herradón, Blanco, Pérez & Sánchez, 2009; Mader, Budka, Anderl, Stockinger & Halbmayer, 2008; Muñoz, et al., 2016; State Government Victoria, 2012; Tirado, Pérez & Aguaded, 2011; Turpo, 2012; Muñoz, 2016), each one of those examples have had very positive outcomes. Furthermore, in private and business sector, Blended Learning is a resource being used by companies towards the training of their workers in recent years (Maesh & Woll, 2007; The Oxford Group, 2013;) in order to allow them to develop social and labour skills, attitudes or specific knowledges related with the educational requirements of each company.

3. NEW RESOURCES. KNOWLEDGE PILLS.

Along with the new training models, new learning resources are being developed, amongst them, knowledge pills are gaining access in the last few years through the Higher Educational System. Bengochea and Medina (2013) refers to them as “little pieces of didactic material, created with the goal of promoting audiovisual learning, and designed to complement traditional strategies, making comprehension easier for students, either because of its conceptual depth, or its technical complexity” (p. 82).

In comparison with another audio-visual learning fields, knowledge skills are characterising by a new way of sharing some information in a small format (videos of 60 minutes or less) allowing students to visualize them when and wherever (Aranguena, Ruíz & Urrutia, 2010), in addition to giving access to a constructive learning acquisition, where the students are capable of building their own knowledge adding to his versatility, allows them to be used on every subject (Álvarez & Arnáiz, 2016; Bustamante, et al, 2016). Until now, this educational resource has been usually employed in MOOCs ( Massive Open Online Courses), but Knowledge Pills can be used in other types of education, such as Blended Learning. A recent research has already proved the higher success rates of knowledge pills over the printed teaching material (Bustamante et al., 2016; Delgado & Ruiz, 2014; Domínguez, 2014; Estévez & González, 2014)

This learning resource, brings us different possibilities to teachers and students. All of that with a focus on an improvement of the educational practise, so teachers could improve their lessons and increase their effectiveness by using knowledge pills as a pedagogical tool Bustamante, et al, 2016; Domínguez, et al, 2014; Pérez, Rodríguez & García, 2015).

As for the students, knowledge pills can be used with different purposes, such as attitudinal content (development of social and personal skills) procedural
(making short-time videos and studying of information) and conceptual (comprehension and assimilation of contents of the subject).

4. KNOWLEDGE PILLS IN BLENDED LEARNING.
Blended Learning has a wide variety of tools, one of them being video content (Salazar & Martín, 2014). Educational reality at the moment, pushes us to combine and integrate pedagogical and technological instruments, so, Blended Learning is the answer, as an educational model, to the request of the society in learning process. As a resource in this educational model, knowledge pills, are the perfect tool to use in both face-to-face and online lessons. They are actually known as a perfect supplement to face-to-face lessons. Video tutorials could be used by students to expand their knowledge, as a support for practical activities, in order to present a compilation of different ideas or topics by students (Bengochea & Medina, 2013; Bustamante et al., 2016).
It is important to keep in mind that in this model, the student is the heart of the learning process, so, designing knowledge pills in Blended Learning contexts should follow these steps:

Figure 1: Production and Implementation process of Knowledge Pills in Blended Learning.
Source: compiled by author based on Domínguez, et al., 2014; Muñoz et al., 2016
According to the figure above, the student’s role is at the base of the learning process, as the main actor, accompanied by professors and new technologies. The process of production and implementation of knowledge pills starts with students’ needs being recognized by teachers, so, this one makes an educational plan based on that evidence and carried by new technologies as an educational tool. Then, the students should choose the educational materials based on their interest, at the same time, they should take an active part in the process by sharing the results of their knowledge with their partners. Finally, evaluating gives us evidences about the succeed rate of this educational practise.

When we have to implement this type of resources, it is important to take into account (Álvarez & Arnáiz, 2016; Pérez, et al, 2015):
- The duration of the knowledge pill should not be over 60 minutes.
- The content must be precise and should allow to go deeper into the subject and the skills related to this educational field.
- All the material should be available on-line, in order to access where and whenever you need.
- Target audience.
- Technical resources.
- Timing, including every step shown in figure 1.

5. CONCLUSIONS.

The digital era and the inclusion of the internet in our daily life, have brought us many changes, greatly affecting the educational field, so, learning processes should pay attention both face-to-face and on-line context. This adaptation, gives us the key to lifelong learning requests through new educational models such as Blended Learning. Combining face-to-face and on-line teaching and learning, can be seen as a good option with lots of positive ratings, also, it has a wide range of training tools. One of them, is the tool known as knowledge pills, increasingly used in higher educational institutions and supported by researches and different practical experiences published up until now, sustaining that the use of resources such as knowledge pills in higher education generate useful educational and motivating materials in order to boost the learning process.

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Free Flowing Content: Unlocking the full potential for transitioning to e-learning at the institution scale

Andrew Knox Cass¹ and Mariia Kravchenko²

¹Department of Energy and Environment, University College Nordjylland - Aalborg, Denmark
adc@ucn.dk

²Department of Energy and Environment, University College Nordjylland - Aalborg, Denmark
mark@ucn.dk

ABSTRACT
Higher education institutions are moving to exploit information and communication technologies by increasing the use of videos both online and in class. This is led, by definition, by ‘early adopters’ and most of the research into this process reflects this. Increasingly, institutions are making strategic decisions to move courses online however, some teachers involved are not well equipped to transition. The barriers are reported to be time constraints and a lack of familiarity with the technology to make video. Also, there is a fear of the ‘presented self’ where teachers may initially resent the idea of being recorded. This paper is the result of an action research process where researchers looked at teachers’ embedded practices to discover hidden skillsets and content. Teachers who were intimidated by moving from the presentation style lecture to video based one, are focused on the process and sometimes do not secure the integrity of the learning. This paper sets out the methods used to assist teachers take the maximum benefit of their existing content as presentation style lectures and utilize them for video recording suitable for both flipped and online classes. A central theme is removing the fear of the presented self and enabling participation in creating active learning environments. This unlocks the potential for whole institutions to make course and department wide moves towards better classroom practice and e-learning opportunities.

KEYWORDS: teaching practices, e-learning, engaging learning environments, video lecture, organizational learning and change.

1. INTRODUCTION
Many institutions are encouraging new teaching practice based on learning outcomes, while trying to adapt to the digital age (Dodero, Fernández, & Sanz, 2003; Olapiriyakul & Scher, 2006). It has been argued that change is necessary to provide for a society that is influenced and driven by information and communication technologies (ICT), with widespread use of social media
services and portable electronic devices (Kukulska-Hulme, 2012; Lawless & Pellegrino, 2007; Pellegrino, Goldman, Bertenthal, & Lawless, 2007).

As with any technological change, the early adopters have high motivation and are continually evolving practice to overcome barriers as they appear. However, many faculty members are reluctant to convert their traditional on campus routines to an online format (Keengwe & Kidd, 2010; Kukulska-Hulme, 2012). The move requires a change in teaching practices and developing new technological skills, which can be time consuming and frustrating (Davis, 2016). As Palloff and Pratt note (2003 p.23), “Faculty members cannot be expected to know intuitively how to design and deliver an effective online course” and that often “faculty members have not been exposed to techniques and methods needed to make online work successful”. Teachers have to spend more time on learning technology, develop new skills in designing online courses and providing on-time feedback to students (Lawless & Pellegrino, 2007). Moreover, according to Nelson and Thompson (2005) and Allen and Seaman (2008), lack of faculty time and workload, lack of support, assistance, as well as training, by institutions impedes teachers’ engagement in online teaching practices. Such impediments are barriers to implementation because teachers cannot or will not participate fully. This can lead to inconsistent outcomes.

The point of departure from current research on online teaching practices is the recognition that voluntary participants in e-learning will not experience such barriers. However, when an institution makes a top down decision to implement an online approach, such barriers can threaten the viability and success of a strategy. The hypothesis was that by allowing the free flow of content from its existing format, into one suitable for the modern online environment, teachers will be able to focus on the course and building an active and engaging learning environment. This paper focuses specifically on the production of videos for e-learning as a means for addressing major barriers to e-learning, that technology mediates a pathway.

2. BACKGROUND

Unsurprisingly, an increasing number of higher education institutions (HEI) across the world are transitioning from traditional “on campus” classes to partially (blended) or fully online classes while aiming to maintain and improve active, engaging and rich learning environments (Keengwe & Kidd, 2010; Van Weert, 2005; Watson, 2006). Integrating ICT and pedagogical practices can improve students’ learning via the affordances they offer (Webb, 2005). Using video is said to be beneficial in online teaching (Bishop & Verleger, 2013) as well as in a variety of face-to-face and blended environments (Shephard, 2003). Online video content comes in four major types: lecture capture format,
voiceover presentation, picture in picture, and animated video with a voiceover (Chen & Wu, 2015). The literature is undecided if learning is improved specifically by differentiating these types (Zhang, Zhou, Briggs, & Nunamaker, 2006). Rienties and Toetenel (2016) describe that content is far less important than learning design aspects which may account for the mixed results of video content type studies. Nevertheless, video is seen as important to the success of online courses and is suggested as the main way to present information in the online environment (Bishop & Verleger, 2013; Chen & Wu, 2015).

Top down change is set against a background of fear experienced by teachers approaching the unknown because it is they who are expected to deliver content, often videos. This is expressed as a barrier to change when teachers contemplate recording a video and is associated with the complex equipment and environment (Bennett, 2012; Brunsell & Horejsi, 2013; Fuller & Manning, 1973; Raths, 2013). Also, many teachers are put off by their own voice when they hear a recording. Because it is so different to how they perceive themselves, there is an immediate aversion to the ‘presented self’, when seen in video format (Fuller & Manning, 1973). Barriers also exist for teachers when it becomes obvious that storyboards, scripts and scene preparation are the bywords of video production, hence demanding more time from teachers (Halili & Zainuddin, 2015; Şengel, 2016).

The new challenge is the expected rate of implementation of institution wide online teaching. Wilson and Stacey (2004) provide an inspiring list of different formats for staff development pathways into online teaching, which are all based on voluntary participation. However, when institutional decisions have been made to move teaching online there is sometimes little regard for how the individual teacher makes this happen.

This paper discusses the approach used to remove the barriers teachers faced after an institutional decision was made to migrate from face-to-face lectures to online teaching.

3. METHODOLOGY AND CONTEXT

This study was a qualitative research since the idea was to include the perspectives of the local population it involved. Since the investigation was undertaken at one institution, we needed to take note of culturally specific details of people’s values, opinions and practices (Cohen, Manion, & Morrison, 2011). Both researchers were part of a ‘community of practice’ (Wenger, 1998) who wanted to improve existing practices. For that reason, this study was done as an action research project to respond to existing problems and provide future guidelines for the implementation of online teaching (Kemmis,
McTaggart & Retallick, 2004). Both researchers were therefore also teachers involved in the case being studied.

The action research took account of three major interventions led by the researchers to change practice within the HEI. Results of each intervention are discussed separately and focused on researchers’ role, actions and reflections. The research utilized a grounded theory approach (Corbin & Strauss, 2008) based on document analysis, field notes from team meetings, observations of 10 teachers recording videos, semi-structured discussions with individual teachers about barriers and their experiences.

3.1. Context

This investigation took place at University College North Jutland (UCN), a Danish HEI. UCN offers courses under the European Credit Transfer and accumulation system (ECTS). In 2015 UCN made the decision to offer a 2-year full time, 120 ECTS course in a technical subject in an online mode that included four, three-day on campus seminars.

UCN uses a Study Activity Model (SAM) (Hansen & Hatt, 2016) to calculate the workload of both teachers and students. The weighting varies from semester to semester however for the research period the lecture load of 330 hours is calculated on activity in section K1, being the "teacher led instructional time".

Investments had been made in a Learning Management System (LMS) that can support online teaching, the teachers were responsible for the migration of content into the online environment. The use of video was heavily encouraged. The teachers were not given additional preparation time from their normal face-to-face preparation and lecture schedule due to budget constraints.

None of the teachers had recorded videos for teaching before and in the majority rejected recording their own videos. It was clear that there were a number of barriers perceived by the teachers. Therefore, the initial approach was that the existing teaching material was to be given to an external person with video recording experience.

Two test videos were recorded and passed to the team to provide feedback. After having watched the videos, the team realized that they did not suit the course. There were several objections:

- The videos tended to be long and quite monotonous
- The visual content was the same as the spoken content
- Some of the content selection omitted critical elements of the curriculum.

In response, the team decided that the videos had to be recorded by someone competent in the topic, should include an element of engagement and that the teachers would have to do the recording themselves. Set against this
background, the action research process commenced, the results are given below.

4. RESULTS

4.1. Intervention 1
Both researchers used an add-on for Microsoft Office® - MIX. This enables one to speak to the already planned slides, sound and animations plus annotations are recorded and embedded into the normal presentation slide. The result was that within a 15-minute session, both researchers were able to produce a 5 - 10 minute video ready for dissemination. The key to the success of this intervention was the focus on utilizing existing content, and staying within the software suite that all the teachers in the department were so familiar with.

4.2. Intervention 2
6 out of 10 teachers identified that: recording of video, seeing yourself onscreen, and losing the teacher student in-class interaction during a lecture as barriers. The minutes showed that the implementation of the online course was delayed and non-viable. The two researchers presented the technique they had developed in intervention 1 to address these barriers. The researchers acted as peers to their colleagues and one by one introduced the recording process. Specifically, it was observed, that the teachers did not need to prepare a script. Teachers, who came to the recording studio showing physical signs of stress, such as defensive body language or shaking, quickly relaxed and recorded videos in their first attempt. They were comfortable working within a familiar software environment.

4.3. Intervention 3
The researchers then implemented workshop training to assist the team to adapt their presentations from voice over style to animated videos and take full advantage of the interactive whiteboard technology to heavily annotate their slides. The teachers expressed to researchers that this activity felt normal because it was their normal practice in class. Heavily annotated slides were preferred by students in class to watch as opposed to simple voiceover presentations. 4 teachers were observed to continue recording additional lectures on their own after providing videos for e-learning.

5. DISCUSSION
The relevance of this research lies in the distinction between mandatory and voluntary participation, which heavily influences teachers’ approach to online course content preparation. The main difference between the two is that
mandatory participants more commonly will experience fear associated with content creation. The fear expresses itself as a barrier to course delivery. The causes of the fear were classified as follows:

- Aversion to the ‘presented self’
- The lack of time to prepare scripts
- The lack of experience with recording process, software and editing

The workshop, a result of the action research process, was designed to mitigate the barriers, experienced by the teachers. For example, the fear of interacting with the slide environment for video recording purposes and the need for scripts was eliminated by using software familiar to the teachers. It resulted in the teachers focusing on pedagogical approaches rather than being preoccupied with technical challenges and barriers. The technique had quite a strong effect on teachers who were negatively predisposed to recording their videos (intervention 2). Teachers who expressed fear of the presented self were quickly able to use the equipment alone and were comfortable with the in-built editing and error correction possibilities.

Once the teachers could easily record a video and make it animated and interactive, they realized that there was an immediate supply of material that could be used to create a more active and engaging lesson (Keengwe & Kidd, 2010). This supply of material is labelled here the ‘free flow of content’ and describes the ease with which existing content can be formatted to suit the online or flipped class. The free flow of content is not about the details of producing videos, but rather removing barriers so that teachers can focus on pedagogically sound teaching for online courses.

6. CONCLUSION

The authors hypothesized that the barriers faced by teachers at UCN would be similar as those discussed in the literature. Teachers approaching the new paradigm due to a top down directive faced uncertainty and were reluctant to embrace video recording technology. The reluctance for teachers to record video lectures threatened the success of an institutional move to offer courses online. The researcher’s interventions effectively removed the barriers and enabled the free flow of content. The key to success was utilizing a familiar software working environment and known content.

It was possible to harness existing content by transforming presentations into animated videos simply and easily. Because teachers were experienced at their content delivery, they realized that no additional preparation such as script writing was required.

The ability to easily record existing content starts the free flow of content. Free flowing content allows teachers to focus on the pedagogical requirements of learning, either in-class or online.
The realization that content could be produced and no major shift in practice endured, effectively removed perceived barriers of having to cater to the online requirements, although making lesson plans and moving lessons into the virtual space does require a lot of planning and preparation. A direct outcome from this research is that the approach discussed above has now been introduced for the pedagogical training at UCN to facilitate the implementation of online teaching in other departments.

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About the editors

JUANJO MENA
He is an associate professor in the department of Education at the University of Salamanca (USAL, Spain). His research focuses on Teaching Practice, Teacher Education, Mentoring, Teacher Development and ICT. He also spent five years as a classroom teacher before joining USAL as full time professor.

FRANCISCO JOSÉ GARCÍA-PeñaLVO
He received his bachelor’s degree in computing from the University of Valladolid (Spain), and his PhD. degree from the University of Salamanca, where he is currently the Head of the Research Group in Interaction and e-Learning (GRIAL). His main research interests focus on eLearning, computers and education and digital ecosystems. He is the Editor in Chief of the Education in the Knowledge Society journal and the Journal of Information Technology Research. He coordinates the Doctoral Program in Education in the Knowledge Society.

ANA GARCÍA-VALCÁRCEL
She is professor of Educational Technology at the University of Salamanca and head of the GITE-USAL Research Group. Member of REUNI + D (University Network for Educational Research and Innovation), RUTE (University Network of Educational Technology) and EDUTECH (Association of Educational Technology). Director of different projects of innovation and research on the processes of digital technologies integration, teacher training in digital skills, evaluation of digital skills of teachers and students and the use of video games for educational purposes.

MARTA MARTÍN DEL POZO
She is a PhD student in the Department of Education at the University of Salamanca (USAL, Spain). She holds a Degree in Pedagogy and a Master’s Degree in ICT in Education. She is currently working on her doctoral dissertation about video games, collaborative learning and teacher education. Her research lines cover video games as educational resources, the integration of educational technology in teaching and collaborative learning. She is an active member of the GITE-USAL research group.
Search and Research: Teacher Education for Contemporary Contexts represents a compilation of international teacher education practice and research that draws upon the diverse educational perspectives, teaching procedures, knowledge, and situated contexts where the discipline takes shape.

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– Part four. Innovative practices and Information and Communication Technologies (ICT).

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