



# Teaching for Tomorrow Today

Edited by Dawn Garbett & Alan Ovens



International Study  
Association of Teachers  
and Teaching



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The editors, as representatives of ISATT, have co-ordinated a double blind peer review process of each chapter and take responsibility for the editorial quality of this edition.



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# Preface

This book includes contributions from participants at the ISATT's 17<sup>th</sup> biennial conference held in Auckland, New Zealand, 13-17<sup>th</sup> July 2015, under the theme "Teaching for tomorrow today". 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. ISATT is committed to contribute to a holistic understanding and theory formation in this field and to promote quality education through improved pre- and in-service teacher education as well as higher education and other aspects of continuing professional development. This is even more important when education is facing global challenges and demands and when the nature of teaching for the 21<sup>st</sup> century has been debated from a policy, research and practice perspective. The improvement of 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 book presents rich and diverse contributions from international scholarship featured at the ISATT conference in Auckland, New Zealand. The chapters provide readers with international perspectives of the challenges and future directions in teaching and teacher education. Each author offers a different lens through which the teaching for tomorrow today may be understood and challenged. The book captures nicely the aim and vision of the conference organisers: "the concept of teaching students today in preparation for a future that is already here" and the "sense of urgency, excitement and challenge we face in modern times". A look at the Table of Contents of this book will quickly reveal the variety of contributors who come from different countries and continents around the globe. This clearly reflects ISATT's diverse and international character whose members currently hail from 47 nations.

I strongly urge readers to reflect upon the key messages of the international contributions included in this book. I hope that they inspire the readers to challenge their own professional contexts and to continue to build the future of education. The ISATT Executive especially thanks the co-editors of this volume who have compiled an excellent collection of chapters on a timely and relevant topic from scholars from around the world.

Maria Assunção Flores, Ph.D.  
University of Minho, Portugal  
Chair, ISATT

# Foreword

*Tēnā tātou katoa - Greetings...*

*Teaching for tomorrow today* is a theme that acknowledges teaching is a living practice that continually evolves, adapts and responds to the opportunities, promises and challenges of being in modern times. Our aim has been to edit a publication that contributes to an on-going discussion of emerging possibilities for teachers and teaching that the 17<sup>th</sup> Biennial ISATT conference provided. We hope that teachers find it an enriching, supportive and engaging community to be a part of, and that this book endures as a record of the work that was shared in Auckland, New Zealand.

In the words of Māori, *Nā tō rourou, nā taku rourou ka ora ai te iwi* - with your basket and my basket the people will thrive. We hope that combining our knowledge and ideas will be beneficial to all.

The editorial process has proceeded in three stages. First a double-blind peer review was used to assess proposals submitted to the conference organisation. Each proposal was assessed by members of the full ISATT2015 Scientific Committee and accepted proposals were returned to authors with an invite to contribute a chapter to this book. The second stage was another double-blind review process to select the chapters for inclusion in the book. There were 80 chapters submitted, with 61 accepted for publication. The final acceptance rate was 75% with a very global mix of contributors. Finally, each chapter has been formatted and printed to be available to conference delegates.

It has been our pleasure and privilege to edit this book on behalf of ISATT. We have learnt much from our interactions with everyone. Thank you for the opportunity to contribute to you, our colleagues in this community.

*He waka eke noa* – we are all in this canoe together with no exception.

Dawn Garbett and Alan Ovens.  
The University of Auckland  
Editors

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## Teaching for tomorrow today editorial review panel

<b>Americas</b>		
Brazil	Luciano Nascimento Corsino	State University of Campinas
	Luiz Sanches Neto	Universidade Estadual Paulista Unesp
Canada	Luciana Venâncio	Universidade Estadual Paulista Unesp
	Susan Elliott-Johns	Nipissing University
USA	David R. Goodwin	Missouri State University
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Singapore	Heng Jiang	National Institute of Education
	Jason Loh	National Institute of Education
Hong Kong	Issa Danjun Ying	The Hong Kong Institute of Education
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<b>Europe/UK</b>		
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	Constanza Tolosa	University of Auckland
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	Lawrence Zhang	University of Auckland

# 1

## Teaching for tomorrow today: Introduction

*Dawn Garbett & Alan Ovens*

The University of Auckland

Today's students are growing up in a world profoundly shaped by communication technologies. It is a world opened up by unprecedented connectivity and access to the cumulative knowledge of the web, and giving rise to questions from young people like, "What did you do before you had Google?" Those who can remember earlier times may respond by saying "we asked our parents" or "we read a book." But those responses don't hold much sway with today's students used to accessing information instantaneously. They have the world's most powerful encyclopaedias at their fingertips. If they want to know the answer to whether aspartame causes blindness, they can find about 193,000 results in 0.39 seconds. If they want to know the 10 most likely questions they will face in a job interview, a click of the button will give them 109,000,000 results in 0.40 seconds. So what is the role of education in such a world?

The theme for this book, *Teaching for Tomorrow Today*, is intended to capture the sense of urgency, excitement and challenge all teachers face as they prepare students for a future that is already here. In most developed countries the precursors of modern technology have been consigned to dusty cupboards or high shelves and skills such as how to thread 8mm film through a projector have been lost through lack of use. Blackboards have been replaced by whiteboards and smart boards; overhead projectors by data shows and document cameras; movies by YouTube clips; pens and papers by laptops, tablets and mobile devices. However, it would be a mistake to believe that the educational future we are talking about can be defined by simply counting the number of new technologies present in the classroom or students' and teachers' abilities to use them. Teaching for tomorrow today is about new social practices that emerge from the the kinds of enterprises, communities, and relationships that such technologies enable. Teaching is a living practice that evolves, adapts and responds to the opportunities, promises and challenges that are continually unfolding and forming.

There was a palpable excitement as the world welcomed in the 21<sup>st</sup> century. For many, the new century held out the promise that the world of tomorrow had arrived. This hope was not

necessarily misplaced, since the growth of new and emerging technologies had already initiated a revolution in not just education, but all aspects of social and global life. It was a century born of an increasingly diversified, globalized and complex media-infused world. Fifteen years on and we now better understand that educating students for work, citizenship, and life in the 21st century is complex. Forces, such as globalization, technology, migration, international economics, wealth, ecological sustainability, privacy and war, all emerge as factors shaping the skills and knowledge students need for success in the 21st century. Globally, educators, education ministries and governments, and employers grapple with what education in the world should, could and may look like. Populations are facing issues like global warming, famine, poverty, disease, exponentially increasing human population and environmental degradation. Increasingly, young people want to engage with these issues on a personal level as well as politically on local, national and international levels. How then does education evolve and adapt?

Bolstad (2011) suggests that there are three ways to think about this “future focus” in education. These are:

1. Thinking about students in their future lives
2. Thinking about the future of schooling, teaching and curriculum
3. Thinking about education as preparation for young people and communities/society to engage with specific future challenges.

This highlights that how we frame the issue is as important as the possible solutions. As Bolstad suggests in her discussion paper, the first question is the most common and familiar to people. What do young people want and need if they are to step out into the world that we have created? The skills of the past, such as reading, writing and arithmetic, have morphed into critical thinking, communication, creativity and collaboration skills. However, the other questions shift the nature of the problem to more unfamiliar ground. The second way of thinking challenges us to question why schooling in the future needs to be different from schooling today? And if so, how? The third draws attention to relationship of education to society. In a world facing serious and intractable problems linked with sustainability, globalisation, and citizenship, what part can or should education play?

These themes are interconnected, but the focus shifts to consider the learning environments and networks; indigenous and ethnic perspectives on education; educational leadership; key pedagogies for subject areas; as well as the broader issues associated with future-oriented teaching and learning.

### Themes

Our aim in this book is to engage with a global range of scholars who examine how the forces of change, and emerging waves of interest associated with these forces, inspire and invite us to imagine a future of learning that is as powerful as it is optimistic for learners from early childhood though to tertiary education. The ways of thinking outlined above are interconnected and point to the complexity of modern education. Complex issues have no easy solutions and are often not solved with in a rational way. However, they are influenced by information and this highlights the need for good research and effective dialogue. For this

reason we have organised the book around five key themes that help focus the questions central to a future focused education.

It begins with two short essays intended as ‘critical think pieces’ to provoke reflection on contemporary education. The remainder of the book is then divided between five key themes. These themes are:

*Learning environments, learning networks and professional learning in teacher education*

High quality teacher education is dependent on well-qualified, knowledgeable teacher educators working in partnership with practising teachers in schools and early childhood settings. Recent trends have seen teacher education devolved to a diffuse group of professionals who are involved in the initial and continuous professional growth of teachers. The change is sometimes reflected in the shift in settings from teacher colleges and institutes to university contexts and the associated change in the nature of the teacher-education workforce from scholarly practitioners to, for example, a mix of educational researchers assisted by practising teachers and graduate students. Several questions arise as particularly appropriate to this sub-theme: What expertise is unique to being an effective teacher educator? How can tensions in partnership models between universities and schools or centres be identified and addressed? How can self-study research enhance teacher educators’ professional knowledge? How can standards frameworks or accreditation of teacher educators strengthen professional identity and enhance teacher education?

*Indigenous, ethnic and cultural perspectives on teaching*

We are citizens in a global community and, as a consequence, educational organisations are more ethnically, culturally and linguistically diverse than ever before. The role of education is to nurture every student’s potential and to create strong, culturally inclusive and responsive educational pathways. Diverse students achieve more success when education acknowledges, values and reflects their multiple identities, languages and cultures; when educational institutions, and other stakeholders (e.g., families) collaborate in genuinely reciprocal ways; and when education is tailored to take account of each student’s distinctiveness. Several questions arise as particularly appropriate in this sub-theme: In what ways can educational institutions be responsive to the diverse needs of indigenous students and students from other culturally diverse communities? What supportive roles can families and other stakeholders play in raising students’ achievement? How can schools more effectively partner with culturally diverse students, families and communities? How can diverse students be well-supported as they transition across key areas – for example from early childhood to primary or from compulsory to post-compulsory education?

*Educational leadership – leading learning*

‘If your actions inspire people to dream more, learn more, do more and become more, you are a leader’ (John Quincy Adams). In every classroom a teacher is leading learning; influencing others’ capacities to affect and sustain positive outcomes for learners; collaborating and cooperating to solve educational problems and to design innovations to impact student learning. In every educational institution (e.g., school, early childhood centre, university) a

#### 4 Teaching for tomorrow today: Introduction

positional leader such as a principal, head teacher or dean, is garnering the personnel, community, material and financial resources to create a culture in which growth thrives. Several questions arise as particularly appropriate in this sub-theme: How do positional leaders, teachers and community members build effective partnerships to lead learning? How can positional leaders and teachers create a culture that is simultaneously coherent and innovative? How can positional leaders foster enrolment of teachers in on-going professional learning? How can teachers be encouraged as leaders of learning without shifting them into administrative or management positions? How do leaders enact advocacy roles when faced with accountability movements, increasing performance pressure and more competition?

##### *Key pedagogies for and across educational sectors*

Teachers draw on knowledge of learners, content, curriculum and context to plan for learning and respond to their learners as they teach through engagement in learning-focused interactions. Expert teachers adapt their signature pedagogical practices flexibly depending on the learners' ages, curriculum requirements, context and content area. Examining and sharing differences and commonalities between early childhood, primary, secondary and tertiary teachers (including those teaching in professional and work-based learning settings) might illuminate underpinning pedagogical principles. Several questions arise as particularly appropriate in this sub-theme: What do expert teachers do – regardless of age, subject and context – to enhance learning for students? What pedagogical principles are transferable from context to context, curriculum area to curriculum area? What constitutes powerful pedagogy in teaching?

It is, without a doubt, an exciting and challenging time to be a teacher. There are innumerable opportunities and reasons for us to learn more about teaching. Our students are depending on us to prepare them for a future that is already here.

##### Reference

Bolstad, R. (2011). *Taking a "future-focus" in education- what does it mean?* (An NZCER working paper from the Future-Focussed Issues in Education (FFI) Project). Wellington, NZ: NZCER

## 2

### Critical think pieces:

#### ***Thinking about teaching as sophisticated business***

***John Loughran***

Monash University

It has been well noted by many over the years that teaching is far too often misunderstood. Public views of telling as teaching have dominated debate as transmissive views of practice have somehow implied a linear relationship between teaching and learning (Barnes, 1976; Dewey, 1933; Freire, 1972; Korthagen & Kessels, 1999; Palmer, 1998; Schön, 1983). In fact, it could readily be argued that many of the growing trends internationally to ‘measure’ students’ learning are based on such simplistic views of teaching. Despite all that we know about the nature of knowledge crucial to creating informed practitioners (Munby, Russell, & Martin, 2001) and the articulation of expertise (Loughran, 2010), it still seems that the lingering influence of that which Lortie (1975) described as the Apprenticeship of Observation persists. Watching teaching suggests that it is dominated by the teacher standing in front of a class and doing a lot of talking. From that observation, the notion of telling as teaching gains an enduring foothold. To many, the difficult practice of teaching can look easy (Labaree, 2000).

#### Recognizing the complexity of practice

So what do we need to do to ensure that the sophisticated nature of teaching is clear and explicit? What would it take to illustrate that teaching requires complex skills, knowledge and ability and that telling isn’t teaching and learning isn’t listening? A common difficulty may well be inherent in the nature of the job of teaching itself. In the allocation of resources to education there is an overwhelming desire to ensure that teachers are in class doing teaching - as much as

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is 'reasonable' across a school timetable. Despite all that we know about the need to support reflection, professional learning and developing deeper understandings of teaching as being problematic (Hoban, 2002), 'doing teaching' is still the major indicator of the work of teaching. Therefore, time out of the classroom does not equate with teaching, and almost regardless of what that time might be used for (developing expertise, learning about different approaches to fostering learning, researching one's own practice) it is not sufficiently valued to be part of a teaching allocation, rather, it tends to be in addition rather than part thereof (Cochran-Smith & Lytle, 1993).

From a teacher's perspective, the 'dailiness of teaching' (Loughran & Northfield, 1996) creates demands that focus energy and attention on preparing for, or reviewing classroom activities. That focus leads to that which Appleton (2002) described as the ongoing search for 'activities that work'. As a consequence, the reasoning that underpins why an activity might be used in a classroom does not gain as much attention as the activity per se and so the pedagogical reasoning (Carlgren & Lindblad, 1991; Elliott, 1996; Herman, 1998; Starkey, 2010) that is so crucial to explicating a teacher's knowledge, skills and ability, remains personal, tacit and largely unarticulated. By not sharing pedagogical reasoning, the doing of teaching tends to dominate discussion and action, and the knowledge that underpins expertise too easily goes un-noticed and therefore under-valued.

### Pedagogical purpose

When Jeff Northfield, as an experienced teacher educator and researcher, returned to teach in a secondary school, he noted that:

After returning to school teaching I can identify closely with the teacher feelings about the education knowledge that matters. From the perspective of an educational researcher I had come to terms with the teacher knowledge I was gaining. It was extremely powerful but closely linked to a particular class of students in particular contexts ... My day-to-day concerns did not seem to fit with the diverse range of ideas and theories I had in my background ... the return to teaching was often a confusing and unsettling experience. The conditions rarely seemed to be suitable to initiate different teaching-learning activities with the class ... my frustration during the year was in trying to analyse the day-to-day teaching experiences in a way that might lead to consistent improvement in classroom interactions. I was also struggling to find ways of communicating my 'teacher knowledge'. (p. 135)

Northfield had a specific focus on student learning that directed his teaching. His pedagogical reasoning revolved around ensuring that all he did in his practice was designed to support and encourage his students to be active, responsible learners; he taught in ways informed by a pedagogical purpose that explicitly fostered the development of students' metacognition. Yet even though he knew what he was trying to do, how and why, he still found it difficult to communicate that thinking to his teaching colleagues. When he did try to share his pedagogical reasoning with his colleagues, he found the lack of a common language and shared intentions as stumbling blocks. Inevitably then, as a fall back, there was the approach that others might be able to use some of his teaching activities, but in so doing, others did not

necessarily 'take with those activities' the underlying purpose for their application and use – or why it might be important to persevere with them if 'success' was not immediately obvious. Hence, what was communicated was more likely than not an activity, not the pedagogical reasoning underpinning the approach.

Through his experience of the return to teaching, Northfield became increasingly sensitive to the importance of differentiating between enjoyment, fun and engagement in learning. He found that the 'dailiness of teaching' tended to lead teachers to inadvertently confuse fun, or enjoyment in an activity, with engagement in learning. However, when his pedagogical reasoning was clear, explicit and central to his practice, such confusion did not occur. Again, his situation highlights the challenge that teachers face in maintaining a strong focus on pedagogical purposes when the rush and bustle of teaching demands a constant stream of activities that work, or an overwhelming sense of needing to keep students busy – which in the end, tends to detract from seriously engaging them in learning.

The nature of teaching suggests that articulating and sharing pedagogical reasoning is difficult for teachers, partly because there is not a shared common language of teaching and learning but also because the expectation to do so is often lacking. That does not mean that pedagogical reasoning is unimportant, more so, it intimates that there is a need to make it more explicit, meaningful and transparent in teaching.

Expert teachers know much more about teaching than just how to use different teaching procedures. Although there is a need for a good 'bag of teaching tricks', having such an array of tools is not an end unto itself. Expert teachers have – and purposefully develop – the 'why' of practice. The reason for choosing to use a teaching procedure in a particular way at a particular time with a group of students is recognition of not just understanding, but also valuing the symbiotic relationship between teaching and learning; and seeing it as a two way interplay that shapes outcomes for both students and teachers.

### Conclusion: Linking with teacher education

If the arguments above are reasonable, then there is an obvious need for the development of knowledge and practice of teaching to be fostered in teacher education in ways that support a vision for teaching that goes beyond 'doing'. It has been well documented that beginning teachers are often overwhelmed by their initial entry into the profession. The 'reality shock' that Veenman (1984) described persists and the danger of being socialized into teaching (Zeichner & Gore, 1990) can limit the opportunities to pursue a professional vision for teaching. As the arguments above suggest, such a professional vision might be about the nature of professional learning and pedagogical development that a teacher sees as important in helping them see how to grow beyond developing a bag of tricks to keep learners busy. It is not just about what teachers need to know and are able to do, but about why those things matter and how they influence learning.

The challenge for teacher education is to begin to make the sophisticated business of teaching clear, explicit and meaningful for preservice teachers and to start by actively challenging views that may well result from the Apprenticeship of Observation. If teacher education is able to better demonstrate that teaching is problematic, then perhaps there are real

possibilities for making the complex and difficult work of teaching more highly valued. Then we really could say that teaching and teacher education makes a difference.

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# *The promise and risks of digital teaching and learning*

*Stuart McNaughton*

University of Auckland

The use of personal devices, super-fast access and smart tools for teachers signals an era of new technology in schools with. Being digitally connected means teaching and learning within and outside of classrooms, in ways that have never before been possible.

These developments carry both promise and risk. The promise is captured in a description of a group of schools in which students have 1:1 devices. In these, teachers and students use an archiving cloud based system with a real time teacher dashboard which, together with their personal devices, enables self monitoring, personalised learning and choice. Unshackled from the lesson form, teachers use the software to add comments and feedback as needed. The differentiation frees teachers up to engage in extended group discussions and conferencing.

If countries don't actualise this sort of promise, it is argued there will be dire consequences politically, socially and economically.

Various commentaries on digital environments make assumptions about the nature of new learning, teaching and development. For example, that digital technologies are 'game changers' in education forcing a rethinking of learning and teaching; specifically in the promotion of 21<sup>st</sup> century skills, increased learner agency and the redefinition of pedagogy. Two assumptions appear in the commentaries: that new pedagogical forms and new skills are needed for digital futures, and there is wide agreement on that. But the assumption is too that these are promoted by digital worlds in schools and that adoption of digital environments will impact on achievement. What is the evidence? In addition, there is clear and present risk for equitable provisions; how do we prevent or overcome this? What is needed is a systematic research and development agenda which adds the needed evidence in each of these areas.

## 21st Century Skills?

21<sup>st</sup> Century learning is often described in terms of developing three sets of skills. These are cognitive skills, such as critical thinking, problem solving, and argumentation; interpersonal social skills such as empathy, collaboration, and sensitivity to diversity; and intrapersonal social skills of self-regulation, perseverance, and adaptability.

Associated with these are a set of newer ‘citizenship literacies’. These skills are informational and critical literacy in specific domains such as science, health and environmental studies. Three observations can be made about these skills. The intra and interpersonal skills have for some time been identified as important in child and adolescent development, in digital environments or not. Secondly, the social skills are usually seen as contributing to curricula but are not foregrounded. Thirdly, two assumptions appear in the commentaries: that the skills sets are needed for digital futures, and there is wide agreement on that. But also that they are promoted by digital worlds in schools and that they therefore impact on achievement.

## Learner agency

Is learner control necessarily greater with new digital environments and does that cause better learning and achievement? Often and consistently increased student engagement is reported; but increased behavioural engagement doesn’t necessarily translate into learning. It is the features of the students’ engagement with learning activities such as complexity, challenge and participation in more extended and higher quality interactions with teachers that count. Even when comparing within digital environments, studies show achievement is no different with greater agency, without deliberate attention to these features.

## Redefined pedagogy

The significance of what it is that learners and teachers do with higher behavioural and affective engagement is illustrated when we look at the possibilities of redefined pedagogy. For example, teacher interactive whiteboards and dashboards in and of themselves don’t change pedagogy. Existing beliefs about pedagogy and student learning, teachers’ preferred uses of conventional whiteboards, their goals and their prior experiences, all shape their usage.

## The implications

Much of this review of skills, agency and pedagogy is well known. But there are two serious implications of rehearsing what is known: there are risks, and we need a changed research agenda. One risk comes from uncritically accepting the claims and assumptions about learner agency and changed pedagogy. If the valued student outcomes include higher quality learning and increased achievement, and if digital environments and personalized tools don’t guarantee these, there is an opportunity cost. Given what the digital environment affords what aren’t we doing and what could we be doing? More importantly there is a risk for equitable outcomes. Differential access to the tools has been seen as creating a digital divide. But now there is a more palpable second divide. There is evidence that the widespread take-up of digital learning initiatives can further marginalise groups who are already not well served by schools, through

differential patterns of usage and engagement with complexity. The primary means for overcoming these risks comes from increasing not decreasing teacher designs for teaching and learning.

### The research agenda

What is needed is systematic research which identifies and tests the learning of and pedagogy for the valued skills, in such a way that we improve schools' effectiveness. This requires answering the question "What works for whom under what set of conditions?", and understanding what innovation and solutions exist on the ground. It means shifting from a focus on programmes to one of capability building.

An example of how to do this comes from a research partnership with schools who have designed a 1:1 digital innovation for low SES, and culturally and linguistically diverse communities. The research shows two things. Firstly, the presence of considerable variability in learning and achievement, and associated with these, variable features of pedagogy. But secondly, when systematic identification and understanding of effective features and their development through the professional communities occurred within and across schools, marked increases in writing achievement took place.

### Conclusion

It is clear that digital futures depend on knowing how to design teaching and learning to optimise valued student outcomes. The designs are in turn dependent on systematically testing and developing what is effective. This means that we need to teach for 21<sup>st</sup> Century skills and for learner agency, rather than assume they will inevitably follow. It means that our forms of pedagogy need to be even better planned and continuously tested and redesigned.

## Part One

# Learning Environments, Learning Networks and professional learning in teacher education

High quality teacher education is dependent on well-qualified, knowledgeable teacher educators working in partnership with practising teachers in schools and early childhood settings. Recent trends have seen teacher education devolved to a diffuse group of professionals who are involved in the initial and continuous professional growth of teachers. The change is sometimes reflected in the shift in settings from teacher colleges and institutes to university contexts and the associated change in the nature of the teacher-education workforce from scholarly practitioners to, for example, a mix of educational researchers assisted by practising teachers and graduate students.

Questions which challenged the authors in this sub-theme of *Teaching for tomorrow today* were: What expertise is unique to being an effective teacher educator? How can tensions in partnership models between universities and schools or centres be identified and addressed? How can self-study research enhance teacher educators' professional knowledge? How can standards frameworks or accreditation of teacher educators strengthen professional identity and enhance teacher education?

## Communities as foundational learning spaces for tomorrow's teachers

*Jude Butcher<sup>1</sup> & Joan Arches<sup>2</sup>*

<sup>1</sup>Australian Catholic University

<sup>2</sup>University of Massachusetts Boston

Governments, teachers, students, families and communities experience tensions relating to educational vision and goals. These tensions reflect the high-stakes agendas of learning outcomes and public assessment, the nurture of personal, family and cultural heritages, and the emerging visions of particular communities and nations. These agendas need to be addressed within the changing social, cultural, structural and economic contexts of communities, nations and the world as a whole. Education and teacher education are perennially at the crossroads as society and policy makers shift priorities and approaches for school and teacher education. In these changing landscapes community engagement provides a key compass point in the search for right direction in teacher education (Butcher, McFadden & McFadden, 2005).

Changing landscapes are to be found in communities as well as in political and educational contexts. As we have entered the 21st. century, globalization has resulted in new waves of immigration and an increase in the number of multi-cultural communities that challenges teachers to think more about inclusivity, cross-cultural identity, generativity, and connectedness. Further, today's children are being educated to be able to take on jobs that may not even exist during their years of schooling.

Political, social and economic factors influencing communities are often by-products of globalization, with accompanying consequences for communities and children. For many families, globalization entails a change from a collective to an individual orientation. Increased privatization brings lower social investment and comparatively lower wages. The quality of life

of many people suffers; their foundations are less stable, their lives less secure and more stressful. More countries are democratizing, but this change does not necessarily entail more equality or less poverty (Andrews, 2004; Kaufman, Rizzini, Wilson, & Bush, 2004; Thompson, 2004). Nevertheless, newcomer families and their communities represent a fertile foundation for learning.

The changes in community contexts and in the nature of work necessitate an education that nurtures students who are at ease working with diversity and recognize its richness. Twenty-first century competencies include working in teams and groups, cultural competence, creative thinking, and problem-solving (Mbugua, Wadas, Casey, & Finnerty, 2004). The dynamic tension between high-stakes outcome measures and our 21st century contexts can be navigated successfully with the help of an understanding of the assets of communities and the creation of authentic roles for families in the learning process, including the curriculum. Families need a place at the education table in order to build for the future (Hill & Taylor, 2004; Zyngier, 2015).

### Conceptual framework

Emphasis is being given in education to the disciplines of mastering and applying knowledge and to scholarship from particular fields of study. At the same time, however, attention is being given to the creative and responsive elements of nature, life and learning, and to the ever-present need for responsiveness to what is best for the whole child.

Teachers and teacher educators need to be wise in structuring curriculum and learning in ways that find the appropriate meeting points between the agendas of responding to high-stakes accountabilities and being true to the role of education as a means of enhancing people's and societies' learning. They need a clear vision and moral purpose to inform their teaching and a readiness to call upon both their disciplined and sympathetic imaginations (Passmore, 1985) for wise and astute professional decision making and engagement as teachers. Teachers and teacher educators are responsible agents in their professional decision making. They take account of, and at times challenge expectations placed upon them, but they are also aware of the moral responsibilities inherent in their vocations as teachers and educators.

Passmore (1985) argues that the disciplines or rules of knowledge "were not first formulated by following rules: their formulation required some sort of imaginative thinking and a critical examination of alternatives" (p. 13). Teacher education, by its nature, is designed to develop both the disciplined and sympathetic imaginations of student teachers, and through them the disciplined and sympathetic imaginations of their students and of the wider communities from which they come. What may seem at first to be a dichotomy of agendas offers a basis for a holistic and community engagement based approach to teacher education, an approach that sees communities as foundational learning spaces within which student teachers develop a professional understanding that draws upon both their disciplined and sympathetic imaginations.

The wisdom required of the teaching profession and of educational systems involves a wholeness of approach that brings together the "disciplined" and the "sympathetic" imaginations rather than privileging the "disciplined," which may give undue emphasis to high-stakes accountability. Undue emphasis on technical skills in teacher education can detract from the development of appropriate teacher education and of students' sense of their vocation as

teachers. Rather, developing student teachers’ “sympathetic imaginations” in dialectical relationship with their “disciplined imaginations” is vital in forming the vision and moral purpose required of teachers in the complex contexts of the 21<sup>st</sup> century. The inclusion of community engagement based teacher education as a “pedagogy of promise” (Butcher & Steel, in press) in teacher education programs develops student teachers’ sympathetic imaginations and promotes a dialectic between their disciplined and sympathetic imaginations.

Community engagement based teacher education is a process of transformative engagement centred on the dignity of the human person and the common good (See Figure 1). It incorporates four phases: establishing engagement priorities and contexts, preparing students for community engagement, undertaking the community engagement and reviewing the community engagement.

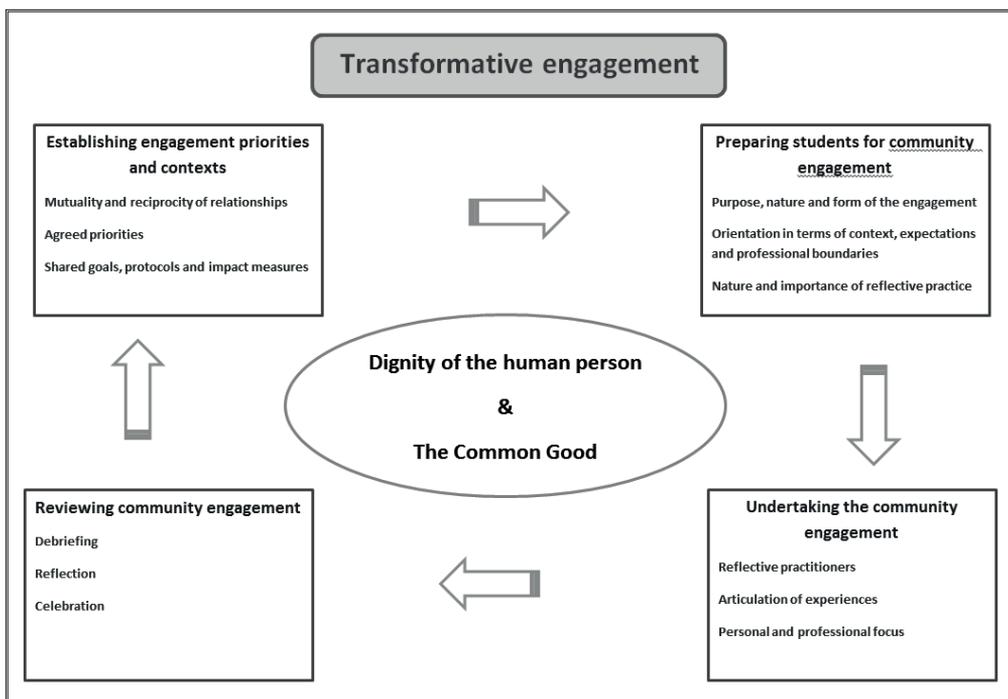


Figure 1. Framework of community engagement based teacher education

## Method

The examples from case studies of this pedagogy presented below focus upon “hope-filled learning” occurring within after-school learning support and conversational English classes in an immigrant community in which 94% of the families of the public school children do not use English as their first language. The data report the learnings of the community and the children as well as of the teacher education students from Australian Catholic University. The analysis was guided by research questions asking students about their experience community

engagement, the challenges they encountered, and their perceptions of the benefits of engagement.

### Case studies of the pedagogy

The Institute for Advancing Community Engagement (IACE) has partnered with university students and communities to instil a sense of citizenship in an approach that is mission-driven and promotes the public good. Rather than focus on programs, IACE seeks to develop strategies and models based on intergenerational and intercultural partnerships aimed at capacity building and hope-filled learning for the whole child and the whole community.

Using this approach, IACE plans strategies based on community-defined concerns, mutuality and respect. This process unfolds by identifying strengths, assets, and resources. Students learn to develop their sympathetic and disciplined imaginations. The case studies show the learnings, not only of the student teachers, but of all involved in the conversation club and in the after-school learning program.

#### *Conversation club*

The English language learning conversation club meets weekly for two hours at a local library, as an element of a partnership of the Australian Catholic University, a non-government organization (NGO) serving immigrants and refugees, and the local Council. It is facilitated by ACU and the NGO staff, with ACU community engagement students participating. The fifteen to twenty community participants are a diverse group consisting primarily of women from eleven countries. These intergenerational participants have a distribution of ages from the early twenties to over fifty. Participants have been in this country from two weeks to fifteen years. Their time in Australia ranges from a mode of one year or less (six people), to those (four people) who have lived here for more than five years.

Club members have raised issues relating to raising children and grandchildren and the struggles of first generation immigrants as they carry out their family roles. A grandmother who recently emigrated from China to help care for her daughter's son, so that the daughter could work, presented to the group how her approach to taking care of her grandchild is upsetting her daughter. She believes in responding immediately if the child cries, a response that angers her daughter, who says that she is busy and can't jump every time the child cries. The grandmother laments that her daughter tells her that what she is doing with the baby is bad. She feels hurt, and also that she is ruining her grandchild. The group responds and members provide their stories of intercultural parenting and identity issues.

Parents talk of concerns about children not wanting to learn their mother tongue. One parent says her children will speak Korean and English, but not her family language, Urdu. A Korean father shares his frustration about his children who are being educated in English and are losing their facility with Korean. The father and sons can communicate in both languages, but because of the father's limited English and the children's limited Korean, the scope and the depth of conversations are limited. A mother from China talks about her aspirations for the children's futures. She emphatically states that she will support them in what they want to do, and that that they don't have to go to University if that is not what they want. After that she adds that when she told one of her sons to do his homework he responded by saying, *I don't*

*have to do it if I don't want to, and don't act like an Asian mother.* This response led to a fruitful discussion, with much learning.

A member who has a seven-year-old child asked one of the group facilitators what to bring to her child's school to celebrate his birthday. She has been told not to bring cake because that would require a knife, and to be aware of food allergies. After much thought and discussion she decided to bring cupcakes. The group facilitator told her that it would help her child if she made extra cupcakes to give to the teachers. She wrote down a sentence, which the mother rehearsed every day, about what she should say in making the offering. The group member reported back to the group on her success, and how happy her child was now. This was followed by a discussion of relationship with teachers, and the impact something like this experience can have on the child. The teachers treat him better, and he has more confidence. It is easier for him to make friends because he has had a successful party. When the child has friends, the mother makes friends with the friends' families when the children get together. This outcome can overcome the social isolation that is often a problem resulting in depression, especially among immigrant women.

When making calendars, members talked about holidays and celebrations in their countries of origin and the similarities and differences across countries. One young male ACU student shared how Eid and Ramadan were celebrated in Saudi Arabia, and an older, female member from Pakistan, with four children, revealed how differently they celebrated the same holidays. The two reflected on how even though they are both Muslim, their practices differ with their different national backgrounds. The group gently teased the young male student who told them that he doesn't know the dates of the holidays until his mother tells him. This student, who was afraid to speak during the first two sessions, is now volunteering to lead the conversational ice-breakers. In his reflections he talks about how much he is learning.

When group members shared their journeys, a young male Australian ACU student commented that definitions of success and significant life events tend to change with age. He discussed his goals of graduating, obtaining a good job and building his career, while women in his group highlighted and gauged their success in relationship to their family members and their achievements. This difference generated a conversation about age, gender and labor market inequities.

Group members became more confident and open-minded, and talked about how they appreciated learning about similarities and differences among the cultures, and that members share not only the good but things they think are not so good. One member significantly commented that she has travelled to many countries and always learned about how people are very different, but now she comes to Conversation Club and has these discussions, and thinks about how we are very similar.

### *Homework support*

Homework support represents a partnership among the school, an NGO serving immigrants, and ACU. It is available after school once a week for one hour in the school library, with ACU tutors working individually with approximately sixteen children from years one through six.

At homework support a Year One boy, who had to write a story with numbers using the example of “three shirts,” was convinced that he couldn’t complete the assignment and was quite sad as a result. He worked with a student teacher who kept encouraging him to discuss what he might want to say. Even when he was able to do that, he was still sure he couldn’t actually write the story, but with her supportive feedback and questions he did so. He looked much more confident and self-assured at the end; he had persevered, and had stayed after all the other students had left.

In this same group there is a mother who drives for two hours to have her children in homework club. One of her children, in Year 2, cannot read. The mother shared her frustration. This child received one-to-one support each week after that. After two weeks that mother came in and spent the entire session working with the student teacher and her child. The child, who usually has difficulty in sitting still, paying attention and completing her work, stayed late as they all pitched in to ensure that she completed her assignment. The mother took notes on strategies, and commented on how hopeful she felt at the end of the session and the student teacher reflected on how helpful it was to have the mother engaged.

A sense of personal agency emerges as members feel they know what to do and have the confidence to try. The group is creating an identity in a new space, and this development is especially evident with children who did not believe they could do the work, and the women who are their mothers and grandmothers.

Reflecting on their experiences in community engagement after four weeks of a twenty-two week program, student teachers defined their challenges and their creative approaches to meeting them.

A student working in a high school with a very volatile young man who gets angry, showed respect and asked him, *Is it OK if we do....?* While many students identified a lack of focus and frequent distraction among their charges, one student talked of giving breaks to young children, because they need a variety of experiences and have limited attention spans, and that it is then possible to get them back to the homework task.

A student working with a seven-year-old boy who had trouble with Mathematics and spoke little English explained the homework in Chinese. Another student spent time outside of her community engagement session looking for books that a child might like. Because the books at school are not engaging him, she goes home and looks for books that might appeal to him. Another student working with a volatile young man noticed he likes to read but he doesn’t like to read the books he has at school. He only likes military and war books. So she looked for books about war.

Another student had a child in her group who threw things. She told him that she noticed that he gets angry when he is becoming frustrated, then stopped the activity to give him a break. The pencil throwing decreased. Another student worked with a primary-aged boy who has autism spectrum disorder. She discovered that when she drew or used visuals to explain something to him he was able to comprehend more easily. She discovered this through experimentation rather than through consulting a lecturer or applying previous knowledge.

To address distractions and lack of focus, one student broke up assignments into small blocks so that children could have breaks. He asked the children to prioritize their work on the bases of what that they could not do at home, and what their parents might not be able to help

them with. Those are the assignments he would make sure to get done during homework support, while also finding time to make sure the children enjoyed themselves.

Figuring out different learning styles worked for another student teacher, who noticed that Mathematics was hard for a child with whom he was assigned. He tried dividing the children into groups of two and have them illustrate addition and multiplication. They actually saw how the processes work — they visualized mathematics.

Respecting culture, understanding more about children's strengths, and not stigmatizing special education students were all matters highlighted by students as learning from community engagement. More than one student teacher reported on learning how to dress and act in a way that is respectful of Muslim parents.

A student teacher who worked with students who have behavioural issues tutored a boy in Mathematics. He did all his quizzes with only a few incorrect answers. But the student noticed that the child always asked what the time was. The student asked if he knew how to tell time, to which the child responded in the negative. The student spent the next few weeks teaching him to tell time using mathematical concepts the boy knew, and then divided the clock into 30, 15 and 5 minute segments. This boy had been teased by his classmates because he could not tell the time. Sometimes when he asked them what time it was they would say 1:00, which is lunch time. It was really 10:11, but the boy believed them because he saw the 1 on the clock, packed up his bags for lunch, and then would get into trouble. This same boy is now telling the student teacher when he arrives two minutes late.

In another conversation a child explained that he had Tourette syndrome, and was ashamed of his shaking. The student reassured him by sharing that he shakes as well. The child said that he had been told he would never be able to drive. The student teacher went on-line, checked out the rules and reported back that in fact the student would be able to get a licence.

The following comments illustrate what pre-service community engagement students are thinking now about hope-filled learning:

*Not giving up on the students; creating a place where they feel comfortable enough to share their weaknesses and make mistakes; a happy environment where they know we care; a place where we don't make assumptions about people, supportive; a hope-filled environment is one that creates a happy place based on respect.*

## Discussion

Over time the conversation club members became more open minded, understanding, and confident. They gained empathy and efficacy. This was largely through relationships based on trust, respect, honesty, communication, and authenticity. The learning environment allowed them to feel comfortable about taking risks, and actively modelled that making mistakes was acceptable. Members learned with and from each other. In their space, power relationships were eliminated. They shared common goals to practice English and feel more comfortable speaking. They shared their stories about immigration, families, role models, values, culture, and actively engaged in the learning. Pre-service teachers working with them learnt about themselves and the group and their communities. They value intergenerational and intercultural perspectives. They see how group facilitators can enable student centered and student led learning. These are principles and approaches that need to continue to be nurtured to support best practice in

teaching (Butcher, McFadden, & McFadden, 2005). Such principles are exhibited in the homework support sessions, but the student teachers need continually and consciously to connect their disciplinary knowledge and their sympathetic imaginations to learn with and about the children. Group reflection in which they share successes and challenges were found to be quite helpful.

What emerged from some of the university students' comments exemplified the tensions between the sympathetic and disciplined imaginations. The students expressed the challenges in their comments and frustrations. Those who struggled with moving beyond already established discipline techniques arrived at innovative solutions, using their creative imaginations in responding to the demands of the disciplinary based assignments. For many students the biggest challenges revolved around being able to apply discipline-based knowledge, *being able to answer their questions, and dealing with kids disrespecting you, not following rules and not listening*. Students who drew upon their sympathetic imaginations responded with approaches that encouraged hope-filled learning. They were eager to engage and *understand the way kids learn and take in information and how they react to different teaching methods, connecting with the kids, gaining experience and understanding from their learning situation*. Students who were so engaged reported how they enjoyed the community engagement and learnt from it.

## Conclusion

Education and teacher education are the subjects of continual reform as policy makers address priorities within ever-changing social, economic and political landscapes. Teachers and teacher educators who are not to be buffeted by the continual reforms need a compass for their professional decision making and practice. Community engagement provides such a compass through its engaging and nurturing of teachers' disciplined and sympathetic imaginations.

The disciplined imagination draws upon the rules of the different fields of knowledge and is informed by scholarship and research as well as by the formal expectations of accrediting and assessment bodies. The sympathetic imagination finds expression in a sensitivity to people, their concerns, achievements and contexts as well as to the aesthetic domains. The sympathetic imagination is developed and nurtured by teachers' and teacher educators' engagement with communities. The communities are foundational learning spaces as teachers and teacher education students, with their moral sense of vocation as teachers, are involved in the continual dialectic of their disciplined and sympathetic imaginations. Through this dialectic they are able to identify what is appropriate for their children now, as well as for their learning for tomorrow

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## 4

# Designing an enhancement guide based on assessed education students' multicultural interpersonal skills

*Leah Li V. Echiverri*

Philippine Normal University & University of Makati

A rapidly changing world is becoming inevitable because of increasing globalization, changing demographics, rapid technological advancement, changing values and attitudes among the generations (Cushner, McClelland & Safford, 2009), workplace skills requirements, and sociopolitical pressures. Thus, the accelerated rate of societal change in recent years accentuates another social dimension on the role of schools. Schools are not only for transmission of cultural heritage and social transformation, but also, to prepare people for living in a changing and unstable world (Sowell, 2005).

The changing nature of the workplace is a prime case in point (NAP, 2011). Adapting to new work environments, communicating using a variety of mediums, and interacting effectively with others from diverse cultures are amongst other workforce ability requirements. Klein (2009) cited Microsoft Chairman Bill Gates as stating: "Communication skills and the ability to work well with different types of people are very important". Likewise, DeVito (2011) cited in the Wall Street Journal said that "communication and interpersonal skills" were at the top of the list among the 23 attributes ranked as "very important" in hiring decisions by recruiters.

Moreover, the repositioning of Higher Educational Institutions (HEIs) as an industry to enhance students' employability poses a challenge to educational leaders. Likewise, the non-relevance of academic programs offered by HEIs alongside the needs of the community and industry partners further contributes to the complicated conditions. To quote the Commission on Higher Education (CHED) Chairman Sec. Emmanuel Angeles: "the curriculum content does not meet the knowledge and competencies required by business and industry."

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Collectively, the ubiquity of this changing educational landscape calls for curricular innovations.

Keeping in mind the challenging academic lives of students vis-à-vis the changing educational landscape, today's graduates can boldly meet future challenges if their schooling and informal learning activities prepare them to develop a range of knowledge, skills and attitudes that are responsive to changing conditions of present times. But Filipino graduates were reported as lacking competencies to meet employers' requirements and exhibiting poor communication skills (Ong, 2011).

Motivated by these complex circumstances, the overall objective of this research was to assess and analyze the level of multicultural interpersonal skills (MIPS) of education students. Specifically, profiling student diversity, using of MIPS in terms of a) interpersonal communication skills in the dimensions of verbal communication, nonverbal communication and active listening and b) relationship-building skills in the dimensions of teamwork, conflict management, intercultural sensitivity and dealing with diversity, establishing the influence of student diversity on MIPS, and analysing the difference in students' perceived level of MIPS to yield an enhancement guide for MIPS.

### Conceptual Framework

Bronfenbrenner's ecological theory states that the social contexts in which children live are important influences to their development (Santrock, 2006). Vygotsky's social constructivism emphasized the social contexts of learning and that knowledge is mutually built and constructed. Accordingly, involvement with others creates opportunities for students to evaluate and refine their understanding as they are exposed to the thinking of others and as they participate in creating shared understanding (Santrock, 2006).

Pre-service education of teachers is a key to achieving sustainable quality basic education (CMO No. 30, 2004). Teachers perform two very important functions in the educative process: namely, character formation and instructional modelling. It follows then, that raising the knowledge, skill and attitude level of pre-service education teachers will influence the quality of basic education of the next generation of learners.

As shown in Figure 1, the outer and inner circles represent the social contexts. The outer circle characterizes the University's defining features. The inner circle represents students' diversity. Consequently, the social contexts influence the students' level of MIPS, namely: interpersonal communication skills, and relationship-building skills. As used in the study, the extent of manifestation is equal to the level of multicultural interpersonal skills.

Written and oral communications make up verbal communication. It refers to the extent to which students can send verbal messages constructively, by the manner he/she expresses himself/herself clearly, communicates emotion, writes clearly and appropriately, and communicates intended meaning. Nonverbal communication refers to the extent to which the student can create meaning/s on behaviours expressed other than written or spoken language; accompany and reinforce spoken communication through the use of body movements, facial expressions, eye messages, paralanguage, and spatial messages. Active listening refers to the extent to which students pay close attention to what is being said; asking the other party for repetition and explanation for clarification of messages.

Teamwork refers to the extent to which students can work together with group members and utilize their skills to accomplish a common purpose. Conflict management refers to the extent to which students can eliminate the underlying reasons for a given destructive conflict, and also, negotiate to solve a problem in a “win-win” solution. Intercultural sensitivity refers to the extent to which students can appreciate cultural differences among people and act appropriately based on that understanding and appreciation. Dealing with diversity refers to the extent to which students can embrace individual differences and take steps to build positive relationships with diverse others.

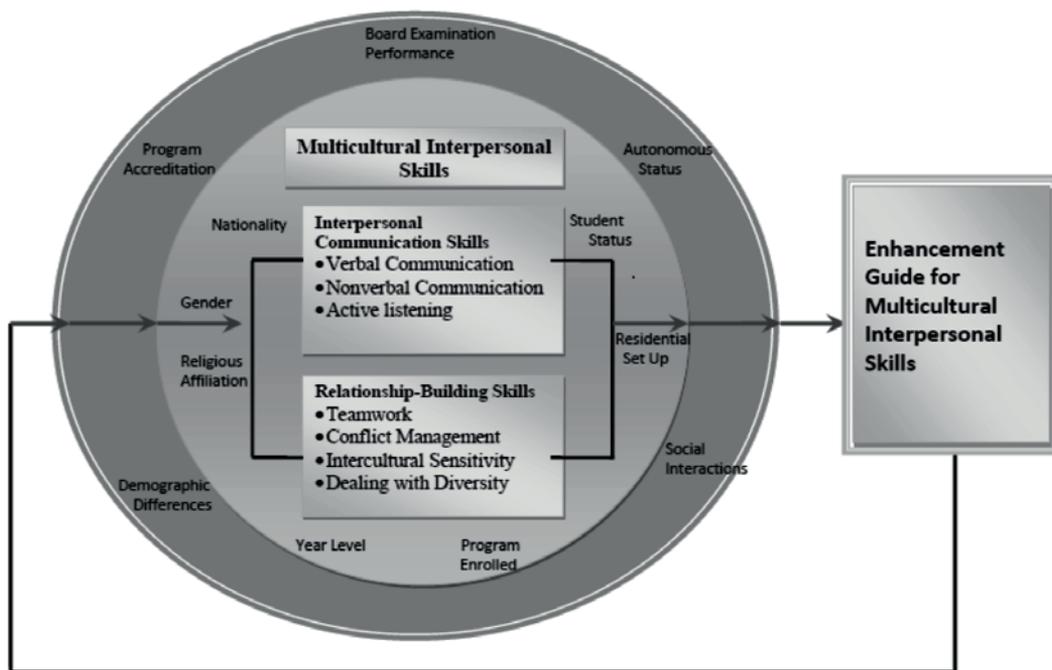


Figure 1. Multicultural Interpersonal skills conceptual framework

### Methodology

The sample size of this descriptive research study consisted of 198 research participants – 170 education students and 28 teachers – selected purposively from the Adventist University of the Philippines. Data collection was done using a researcher-developed instrument, focus group discussion and structured interview techniques. The researcher-developed instrument included seven dimensions – verbal communication, non-verbal communication, active listening, teamwork, conflict management, intercultural sensitivity, and dealing with diversity - based on the review of related literature and validated by field experts. The 5-point Likert scale was used to arrive at a meaningful interpretation of the assessment instruments.

Basis for the requirement of developing an enhancement guide was the 5-point rating scale. The 5-point scale was set to equate the arbitrary standard of “Total Quality Assurance (TQA)

attained”. To determine gaps, the general means of the MIPS dimensions were computed and compared to the arbitrary standard of “TQA attained”.

## Results and discussion

### *Profiling student diversity*

Table 1 shows the profiling of student diversity in terms of the following: gender, racial identification, program enrolled, year level, residential set up, religious affiliation, and student status.

Table 1. Student profiling by demographics

Demographics	Percent %	Demographics	Percent %
<b>By Racial Identification</b>		<b>By Residential Set Up</b>	
Filipino	90.14	Dormitorian	42.70
Foreigner	8.45	In-Campus	19.20
Missing	1.41	Off-Campus	38.00
<b>By Academic Programme</b>		<b>By Religion</b>	
BSEd	69.48	SDA	85.91
BEEd	30.05	NON-SDA	13.61
Missing	0.47	Missing	0.47
<b>By Year level</b>		<b>By Student Status</b>	
First Year	37.09	Non Working Student	56.81
Second Year	26.29	Working Student	43.19
Third Year	19.72	<b>By Gender</b>	
Fourth Year	16.90	Male	23.10
		Female	67.90

### *Interpersonal communication skills*

Descriptive analysis shows that active listening, non-verbal communication and verbal communication had overall mean scores of 3.83, 3.76 and 3.59 respectively as shown in Table 2. Generally, the perceived level of education students' interpersonal communication skills was frequently manifested interpreted as very good.

The summary of indicators of interpersonal communication skills ranked in a descending order is shown in Table 3. It shows that in active listening, the students allowed the person to finish his/her message first before making a point. When in group discussions, they listened attentively to what others were saying regardless of their cultural backgrounds indicating that they were good listeners. In non-verbal communication, students could figure out other people's mood by their voice and facial expressions. They used body movements and facial expressions to reinforce their verbal messages. In verbal communication, there were evidences of the use of appropriate language when in disagreement, asking questions when talking to people to ensure understanding and engaging oneself in class discussion with classmates from different cultural backgrounds.

Table 2. General Mean Score for Interpersonal Communication Skills

Areas of Evaluation	Students		Teachers		Overall		TQA		
	Mean	Verbal	Mean	Verbal Interpretation	Mean	Verbal Interpretation	Rank	Intent	Gap
Verbal Communication	3.59	VG	3.59	VG	3.59	Very Good	3	5	<b>1.41</b>
Nonverbal Communication	3.84	VG	3.68	VG	3.76	Very Good	2	5	<b>1.24</b>
Active Listening	3.95	VG	3.71	VG	3.83	Very Good	1	5	<b>1.17</b>
General Mean	<b>3.79</b>	<b>VG</b>	<b>3.66</b>	<b>VG</b>	<b>3.73</b>	Very Good			

Table 3. Summary Table of the Indicators of Interpersonal Communication Skills

Interpersonal Communication Skills Domains	Indicators ranked From Top to Lowest Mean Rating
<i>Active Listening</i>	<ul style="list-style-type: none"> <li>• Students allow the other person to finish his/her message first before making a point.</li> <li>• Students attentively listen to what others are saying regardless of their cultural backgrounds during class discussions.</li> <li>• Students are good listener.</li> <li>• Students listen without judging the speaker.</li> <li>• Students purposely state in their own words the message heard to ensure accurate understanding.</li> <li>• After listening, students on purpose ask appropriate questions to gather additional detail to ascertain understanding of the message.</li> </ul>
<i>Nonverbal Communication</i>	<ul style="list-style-type: none"> <li>• Students figure out other people's moods by rate, tone, and volume of their voice.</li> <li>• Students use body movements and facial expressions to reinforce verbal messages.</li> <li>• Students recognize other people's emotions by their facial expressions.</li> <li>• Students consider the cultural background of a person he/she is talking to in order to use appropriate body gestures.</li> <li>• Students maintain distance appropriate to the type of relationship one has with the other person.</li> <li>• Students recognize messages conveyed by the sender through eye movements.</li> </ul>
<i>Verbal Communication</i>	<ul style="list-style-type: none"> <li>• Students use appropriate language so as not to offend any gender or culture when in disagreement.</li> <li>• Students ask questions to be understood clearly.</li> <li>• Students engage in class discussions using the English language with classmates from different cultural background.</li> <li>• Students articulate new understandings learned from the information shared in class discussion using the English language.</li> <li>• Students easily express ideas to others using the English language.</li> </ul>

- Students express their thoughts in the English spoken language.
- Students communicate feelings with teachers regardless of cultural differences.
- Students use the English Language in their oral and written communication for a range of purposes (e.g. discussion, explanation, report presentation, course requirements, email messaging )
- Students articulate thoughts and ideas using clear and precise words of the English language in both oral and written communication
- Students integrate life experiences during class discussions using the English language.

It can be surmised that education students' very good interpersonal communication skills were frequently manifested through attentive listening by not interrupting the speaker regardless of one's cultural background. They understood non-verbal communication particularly, voice and facial expressions and at the same time, they used body movements and facial expressions to express themselves. They used appropriate language when in disagreement and even asked questions to ensure understanding. They engaged themselves in class discussions with classmates from different cultural backgrounds.

#### *Relationship-building skills*

In general, the perceived level of the students' relationship-building skills as shown in Table 4 indicated that it was frequently manifested interpreted as "very good". The highest mean of 3.91 is intercultural sensitivity skill, followed by teamwork, dealing with diversity, and conflict management with its' corresponding means of 3.87, 3.81 and 3.61.

*Table 4.* General Mean Score for Relationship-Building Skills

Areas of Evaluation	Students		Teachers		Overall		TQA		
	Mean	Verbal Interpretation	Mean	Verbal Interpretation	Mean	Verbal Interpretation	Rank	Intent	Gap
Teamwork	3.91	VG	3.83	VG	3.87	Very Good	2	5	1.13
Conflict Management	3.65	VG	3.57	VG	3.61	Very Good	4	5	1.39
Intercultural Sensitivity	3.92	VG	3.90	VG	3.91	Very Good	1	5	1.09
Dealing with Diversity	3.82	VG	3.79	VG	3.81	Very Good	3	5	1.19
<b>General Mean</b>	<b>3.83</b>	<b>VG</b>	<b>3.77</b>	<b>VG</b>	<b>3.80</b>	<b>Very Good</b>		<b>5</b>	<b>1.20</b>

Shown in Table 5 is the summary of Indicators of relationship-building skills ranked in a descending order. It shows that intercultural sensitivity was indicated by open mindedness. Thus, students were good at understanding about other people's thinking and feelings. They

could easily make adjustments and be flexible in changing opinion when dealing with cultural differences.

Table 5. General Mean Score for Relationship-Building Skills

Dimensions of Relationship-Building Skills	Indicators ranked From Top to Lowest Mean Rating
<i>Intercultural Sensitivity</i>	<ul style="list-style-type: none"> <li>• Students are good at understanding the way other people think and feel by being open minded.</li> <li>• Students are easy to make adjustments in general.</li> <li>• Students are flexible to change opinion about people from different cultural background.</li> <li>• Students are able to adjust communication style when interacting with people from different cultures.</li> <li>• Students choose to adjust their behaviour accordingly when working relationships are influenced by cultural differences.</li> <li>• Students understand, rather than attack, a different point of view.</li> </ul>
<i>Teamwork</i>	<ul style="list-style-type: none"> <li>• Students acknowledge and praise the efforts of group mates.</li> <li>• Students find it easy to work with me.</li> <li>• Students choose to focus on positive traits of group mates rather than individual differences.</li> <li>• Students have trust and confidence in group members to do their task regardless of cultural differences.</li> <li>• Students always interact cooperatively with group members.</li> <li>• Students help group mates develop their fullest potential regardless of their cultural background.</li> <li>• Students are good at building team spirit by respecting the diversity of ideas, working styles, and approaches of each group member.</li> <li>• Students lead the group to a consensus in the midst of diverse reactions.</li> <li>• Students bring the group back to the subject of discussion when the group gets off track from the main topic.</li> </ul>
<i>Dealing with Diversity</i>	<ul style="list-style-type: none"> <li>• Students enjoy working with different kinds of people.</li> <li>• Students exert effort to understand people from other cultures.</li> <li>• Students build trust among peers by being open about themselves to others.</li> <li>• Students are sociable persons.</li> <li>• Students are comfortable talking to visitors.</li> <li>• Students encouraged peers to share their personal feelings and reactions.</li> <li>• Students look for learning opportunities by interacting with a variety of peers in new situations.</li> <li>• Students gather information about the culture of other countries.</li> </ul>
<i>Conflict Management</i>	<ul style="list-style-type: none"> <li>• Students consider possible options in decision making when trying to solve a problem.</li> <li>• Students help people work out conflicts regardless of their cultural background.</li> <li>• Students are able to use humour effectively to defuse emotional situations.</li> <li>• Students weigh all sides of an issue at hand before trying to solve it.</li> <li>• Students collect relevant information when faced with difficult situations.</li> <li>• Students have self belief to handle most upsetting problems.</li> <li>• Students eliminate personal bias and unnecessary emotions to be objective when in conflict with someone from a different culture.</li> <li>• Students pacify friends who are in argument with each other.</li> <li>• Students discuss group decision with colleagues when personal decision is not in agreement with the group decision.</li> </ul>

It can be noted from the responses that acknowledgment and praise of student efforts by their group mates motivated everyone to work; thus, students enjoyed interacting cooperatively making it easy for everyone to build a teamwork spirit which leads to successful achievement of a goal.

In dealing with people of different cultural background, it was perceived that students enjoyed working with different kinds of people and exerted effort to understand people from other cultures. In conflict management, it indicated that students frequently considered possible options in decision making when trying to solve a problem. They helped people work out conflicts regardless of their cultural background and even used humour effectively to defuse emotional situations.

It can be surmised that education students' very good relationship-building skills were frequently manifested through open-mindedness. Consequently, this made it easy for them to understand, make adjustments and relate well with others. Acknowledging and praising the efforts of group mates built up their teamwork spirit. Hence, students were motivated, enjoyed working with each other and even exerted effort to understand people regardless of cultural background. By being open about themselves, they were able to build trust. When trying to solve problems, they considered possible options when making decisions, and helped people work out conflicts, and used humour effectively to defuse emotional situations.

#### *Student diversity and multicultural interpersonal skills*

Davidman and Davidman (1994) emphasized that the average public school classroom is inevitably multicultural in terms of the groups and cultures that are found in any public school classroom. Teaching is a multicultural encounter. Both teachers and students belong to diverse groups differentiated by variables such as age, social class, gender, race and ethnicity (Banks & Banks, 1995). According to Smith (2009), diversity provides an excellent context for students to acquire the multicultural understanding and skills needed to function effectively in their local communities, the nation, and the world.

As shown in Table 7, the students' level of multicultural interpersonal skills was "very good". One good association to its' high rating is its' social context characterized by student diversity. The inference is anchored on the ecological theory which states that the social contexts in which children live are important influences to their development (Santrock, 2006).

During the focus group discussion, a local student interviewee commented; "*Since the school setting is composed of foreign students (specifically mentioned) and those coming from other provinces, I have to speak in English to be able to communicate with them. Otherwise, we don't understand each other.*"

Similarly, a foreign student residing in the dormitory explained that: "*Residing in the dormitory of which my roommate is a Filipina, I have to know her. Otherwise, I will not get to understand her. Since we have different ways of interpreting things, I take the initial action to ask my roommate to make me understand what it means from the Filipino point of view. In the same manner, my roommate asks questions on things, events, situations, that describe my cultural background. In this way, she is able to understand me and understand my culture too*".

It can be surmised from the responses that education students were able to adapt and fit themselves to the defining features of a diversified school culture to express themselves. As DeVito (2011) cited, culture is learned from the people you interact with as one socializes.

This hinges on DeVito's theory, which states, "*Acculturation* is the process by which you learn the rules and norms of a culture different from your native culture".

It appears therefore that students' interactive exposure to this multicultural setting contributed to the "very good" shaping of their MIPS.

### *Test of significant difference*

Juxtaposed in Table 6 are the mean ratings of the two groups of respondents. The perceptions of both students and teachers showed no significant difference as to the level of students' multicultural interpersonal skills. This is a very good indication of the reliability of the results surveyed.

Table 6. T-Test Value Comparing the Respondents' Perceptions on Students' MIPS

Multicultural Interpersonal Skills	Mean		Mean Difference	t <sub>computed</sub>	t <sub>critical*</sub>	Significance
	Students	Teachers				
Verbal Communication	3.591	3.590	0.001	0.022	2.101	Not significant
Nonverbal Communication	3.84	3.68	0.16	1.096	2.228	Not significant
Active Listening	3.95	3.71	0.24	1.520	2.228	Not significant
Teamwork	3.91	3.83	0.08	0.850	2.101	Not significant
Conflict Management	3.65	3.57	0.08	0.885	2.120	Not significant
Intercultural Sensitivity	3.92	3.90	0.02	0.412	2.228	Not significant
Dealing with Diversity	3.82	3.79	0.03	0.215	2.145	Not significant

### *Basis for designing an enhancement guide*

Total quality management (TQM) has been used in setting the criteria to determine the basis for enhancement. TQM is about creating a quality culture and incorporates quality assurance (Sallis, 2002). Quality Assurance (QA) is about designing quality into the process to ensure that the product is produced to a predetermined specification. Sallis stated that quality assurance is a means of producing defect-and fault free products; the aim is "zero defects". It is about consistently meeting product specification.

Table 7 shows a "very good" verbal interpretation of the students' MIPS level, but, the numerical rating obtained clustered at the midpoint class width between 3.0 - 4.50. Hence, the need to reduce existing gaps in order to attain "TQA". The outcome of this study provides the basis for the development of an enhancement guide.

The heart of the guide will focus on the multicultural interpersonal skills key concepts and enhancement guidelines on each of the seven domains. The MIPS assessment instrument is provided too.

Table 7. Summary of the General Mean Score for Each Dimension of the Level of MIPS

Dimensions of Multicultural Interpersonal Skills	General Mean	TQA	Summary		
			Gap	Rank	Verbal Interpretation
Intercultural Sensitivity	3.91	5	1.09	1	Very Good
Teamwork	3.87	5	1.13	2	Very Good
Active Listening	3.83	5	1.17	3	Very Good
Dealing with Diversity	3.81	5	1.19	4	Very Good
Nonverbal Communication	3.76	5	1.24	5	Very Good
Conflict Management	3.61	5	1.39	6	Very Good
Verbal Communication	3.59	5	1.41	7	Very Good
<b>Average General Mean</b>	<b>3.77</b>		<b>1.23</b>		<b>Very Good</b>

*Legend: TQA attained =(4.51-5.00) Strengths= (3.0-4.50) Weaknesses=(2.9 & below)*

## Conclusions and recommendations

Education students have very good multicultural interpersonal skills. Both interpersonal communication skills and relationship-building skills were “very good”. They frequently manifested attentive listening and open mindedness regardless of the other person’s cultural background. Active listening and intercultural sensitivity enabled the students to easily make adjustments in dealing with cultural differences.

The social context characterized by student diversity influenced the shaping of the students’ very good multicultural interpersonal skills. No significant difference was found on the respondents’ perceptions.

Verbal interpretation was “very good” but the numerical rating indicated the need for skills enhancement as prescribed by Total Quality Assurance. Hence, there is a need to develop a multicultural interpersonal skills enhancement guide.

Given the foregoing conclusions, the following recommendations were hereby offered:

1. Enhance students’ level of multicultural interpersonal skills.
2. Develop an enhancement guide based on empirical data juxtaposed with exhaustive review of research literature.
3. Replicate this study as one of the processes to promote a culture of quality in educational institutions. When replicated, consider validating further the survey questionnaire and other variables.
4. Conduct a comparative study of the variables investigated among the various educational institutions.

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## Towards meaningful reflection in teacher education as professional learning

*Susan E. Elliott-Johns*

Nipissing University

In my work as teacher educator, encouraging teacher candidates to move towards becoming reflective practitioners, i.e., individuals who are enabled to connect reflection to personal action, remains a priority. I purposively design course components to include both classroom learning activities and assignments for evaluation requiring in-depth discussion, critical thinking, and reflection. I find it increasingly beneficial to allocate class time to explanations of what I mean by reflection, my rationale for including opportunities for teacher candidates to reflect, the explicit clarification of expectations for reflection as part of course components, and sharing of illustrative examples. Recognizing this as, most likely, a direct result of continuing to interrogate, develop, and enact my pedagogy of teacher education (including documenting my own critical reflections), reflection continues, very naturally, to work along (and between) the margins of my research and practice.

While concepts of reflection and reflective practice occur frequently in the literature and discourse of teacher education - including the relevance of reflective practice to ongoing professional learning for teachers and administrators (Admiraal & Wubbels, 2005; Birmingham, 2004; Day, 2003; Hargreaves & Fullan, 2012; Loughran, 2002; Rodgers, 2002; Russell & Korthagen, 1995), the concept still appears to be somewhat vague - and often interpreted very differently. Schon's (1983) notion of the reflective practitioner is at the heart of several understandings, however, as Ottesen (2007) notes, the seminal work of John Dewey (1997 - Original work published in 1910) and Max Van Manen (VanManen, 1977, 1991) has also, "strongly influenced the development of a variety of understanding and perspectives on reflection in education (Calderhead, 1987; Grimmett & Erickson, 1988; Korthagen, 2001; Russell & Munby, 1992; Valli, 1992; Zeichner, 1987; Zeichner & Tabachnik, 1991)" (p. 31-32).

My own understandings are informed by pragmatic influences in the work of both Dewey and Schon.

Initially educated as a teacher in London, England (1975-1979), Dewey's philosophy of education and pivotal ideas still provide rich sources of inspiration in my own reflective practice. Dewey's writings on the nature of experience remain a conceptual and imaginative backdrop that informs my work in the area of teaching others about reflection in education, specifically reflection in and for *teacher* education.

I place considerable emphasis on developing explicit awareness of the important 'shift' from *thinking like a student* to *thinking like a teacher*, as facilitated by the ability to reflect deeply on experience as one discovers, "that explicating and exploring dilemmas is of itself a way of knowing" (Swartz, 1994, p. 101).

### Looking for answers in reflections on practice

How do I describe what I understand by reflection to teacher candidates? I demonstrate how (and why) reflective practice is situated as central in my own life and work; I talk openly about how nurturing the development of teachers who *think deeply* about their professional practice is at the heart of my efforts to promote reflection in teacher education, underscoring the emphasis on *meaningful* reflection. Approaches to facilitating the development of meaningful reflection are highly diverse and complex and, like Russell (2013), I sometimes worry "the ways teacher educators have responded to and made use of the concepts of reflection and reflective practice may be doing more harm than good in pre-service teacher education" (Russell, 2013, p. 80).

I consciously embed *learning to reflect* throughout my work. For example, explicitly teaching about reflection as a 'skill' (one that needs to be practiced regularly), and directly linking this to understandings of personal action and professional learning. Whenever possible, I explain and systematically *model* reflective practice. All this is done quite intentionally to diminish the effects of what, in my experience, is too often the case: "Teacher candidates tend to complete a program with a muddled and negative view of what reflection is and how it might contribute to their professional learning" (Russell, 2013, p. 87).

Facilitating the teaching of thinking is at the heart of this work. As Socrates suggests, "I cannot teach anybody anything, I can only make them think..." Promoting teacher candidates' thinking about "learning to teach" and pragmatics associated with beginning to identify and successfully integrate strategies for the teaching *of* thinking, is an essential aspect of developing effective classroom practice.

Turning the lens on ourselves, as teacher educators, is a constructive starting point in gaining clarity and greater understanding about what we actually mean by 1) reflection (e.g., when including this in course content at the faculty); and 2) honing the ability to articulate *why* we think 'reflection' is an important element of teacher education.

While it may seem somewhat daunting at first to do this (alongside students), it is worth pushing through the initial angst if one is serious about teaching teachers to reflect beyond the superficial. In my own experience, surfacing and articulating responses to both 1) and 2) above and 'drilling down' on these with our colleagues illuminates what appears to have gone awry in terms of 'reflective practice' in teacher education (Russell, 2013).

My sense of identity as teacher educator is of relevance here too: Someone who consistently turns to ‘journaling’ (recording thoughts, ideas, questions and responses to, ‘What have I learned?’), I can systematically examine and try to better understand my own assumptions, motivations, aspirations, commitments and relationships related to life and work. Making pedagogy visible and better understanding what is happening and/or what I might do differently remains integral to the purposes of my own reflection as an educator. I find it a fairly natural process to model reflective practice in the classroom on an ongoing basis. Inquiry-based approaches to teaching and learning include my ongoing professional learning and current research in the self-study of teacher education practices (S-STEP). To paraphrase Mark Twain, ‘How do I know what I think until I write it down?’ has become a significant guiding question for my own research and practice and responses frequently offer multi-faceted and informative insights. In turn, reflections on various ways I act upon what I am learning (e.g., specifically about being a teacher of teachers and the different ways teacher candidates respond to my approaches to teaching and learning), continue to inform my pedagogy of teacher education. Rich sources of deeper understanding are a result of my own critical thinking processes and reflection on the development and enactment of a pedagogy of teacher education (Loughran, 2006 ; Russell & Loughran, 2007 (Eds.)). Understandings resonate deeply and iteratively as catalysts for further thinking about innovative teaching, research, and pedagogy – especially when, I find, they are shared with my students of teaching.

So, what *do* we say when we look hard at what we do and why we do it? What do we write when we stay silent long enough to actually reflect and write at length about this exceedingly difficult career we have chosen for ourselves? The first (2007) of two sample journal entries illustrate reflections over time, and serves to share insights into some of my own thinking early in my career as a full-time teacher educator at the faculty, and the habitual work of interrogating and learning from analysis of practice:

*.... I believe that the design of climates conducive to learning requires self-respect, a genuine respect for others, knowledge, understanding, sensitivity, effective communication skills, recognition of diversity, and the ability to nurture relationships between all participants in a classroom learning community. I work hard to engage all teacher candidates in classes that explicitly model and demonstrate how reflecting upon what they are learning about teaching can, in turn, serve to inform their “thinking like a teacher” and developing pedagogy for J/I classrooms.... (Journal Entry, 2007)*

A second, more recent entry (2012), surfaces similar themes and articulation of developing pedagogy and practice to support teacher candidates in learning to reflect and making explicit the links to their professional learning:

*Knowledge of, and experience with, effective teaching and learning to promote language arts and literacy across the curriculum in J/I grade levels are carefully integrated through assigned readings, class discussions, experiential class/group activities, the ongoing study of children’s and young adult literature as resources, relevant assignments, and frequent opportunities for reflection and the construction of practical wisdom.... participants are*

*offered opportunities to read, write, and critically think about their 'learning about teaching', and to engage in the ongoing development of reflective practice....*

(Journal, May, 2012)

## Explorations of reflection in contemporary teacher education

Reflection is listed as integral to most teacher education programs (it seems every website cites the importance of becoming a 'critically reflective teacher'), but students still appear to experience confusion about the nature of reflection. What is really meant by reflection? I have observed the term attached to assigned coursework that merely requires annotation or recording of observations/descriptions in note form (problematic because 'note-taking' is undertaken for different purposes and involves different processes to (meaningful) reflection); I have also overheard comments from teacher candidates who are clearly frustrated at being asked to reflect one more time, do not really understand what they are being asked to do and why; in these instances, 'reflection' has most definitely become 'The "R" word!'. Comments shared by faculty and teacher candidates alike frequently demonstrate differences in perceptions of expectations for reflection from one professor to another – and inevitable confusion. These observations have resulted in closer examination of my own expectations and explorations of the question, What do I intend teacher candidates to learn when I design and include opportunities to reflect in coursework?

Initial responses revealed tensions between my recognition of limited time available to teach reflection effectively, including attending to essential elements of building trust and confidence with teacher candidates so that they may also become more comfortable in composing and sharing authentic reflections. Equally, it became clear it is not my intention to act as a therapist (Korthagen & Vasalos, 2005); rather, to link reflective processes to the completion of teacher education coursework as professional learning. There is a pressing need to prioritize opportunities for teacher candidates to think critically, and to experience reflection much more deeply than is possible when reflection is interpreted as, "jotting a note on what I observed". I began closely examining results of assignments I ask teacher candidates to complete as coursework, analyzing their work in the light of two questions: 1) What do teacher candidates appear to be learning? and 2) What am I learning (as teacher educator) about what they are learning?

I learn much about these developing teachers and their 'thinking like a teacher' as a result of engaging with their reflective writing. For me, this makes assignments more valuable in terms of a) what we are collectively able to glean from the completion of coursework, and b) how their learning about teaching continues to inform and enhance my own practice in terms of the 'pedagogical turn' (Russell, 1997).

## Learning from experience: Reflection as teacher education

I endeavour to explicitly address the two competing agendas students of teaching must recognize and to which they must respond (Loughran, 2006), i.e., teaching about teaching and the learning about teaching. In my work as a literacy teacher educator and as a self-study researcher, I am open to both learning alongside my students and the re-shaping of my own

teacher education practice. I have found that combining Loughran's influential work with a reflective teaching model grounded in John Dewey's fundamental equation of *Experience + Reflection = Growth* both motivates and enables teacher candidates to progress in the area of reflection. This also moves them along the 'teacher education continuum'. Recurring themes in reflections submitted as coursework include: teacher candidates who know how to truly reflect, or understand how reflection can enhance learning about teaching, are rare; building authentic trust and rapport takes time - a question I frequently find myself asking is, 'What do we teach when there isn't time to teach everything?'; time is perpetually of the essence.

I intentionally allocate time for teacher candidates to engage in meaningful reflection and writing, integrating reflective practice across all class activities and assignments. Teacher candidates are encouraged to think of the process as 'looking through the rear-view mirror' - thereby facilitating reflection on (and in) action/experience. I have noticed other recurring patterns and themes in reflections, particularly at the beginning of the B.Ed year, and I use these to inform and improve my own practice. For example, initial reflections are frequently written in the third person, as opposed to the first person, 'I....' and constitute observations, or 're-telling', as well as arms-length 'commentary' (also in the third person) such as, 'Teachers should....' We confer in class about how difficult it is for them to switch into first person (e.g., they will comment that 'undergraduate degree assignments were always required in third person', and they find it very odd to be writing an assignment in first person); inevitably, this further informs my approaches to responsive instruction. In written feedback my comments ('nudges') will ask, 'Are you thinking and writing from an "I" perspective?' and offer suggestions to assist cultivation of a more reflective stance.

Initially, that the purpose of the writing itself is to demonstrate their thinking and professional learning sometimes appears difficult to grasp (e.g., in terms of the prompt, 'What comes to mind?') Many teacher candidates begin exhibiting very little confidence in sharing their own 'voice'; rather, they will cite/quote/paraphrase the 'experts'. Recognizing, and using student voices to guide instruction (Elliott-Johns et al, 2012), represents another cornerstone of my research and practice - and why I consider opportunities for meaningful reflections vital to realistic teacher education. The gradual surfacing of their own 'voice', and increasingly critical thinking conveyed in the reflections I read and respond to throughout the year, requires consistent support, encouragement, and time to think.

In my experience, it is important to be sensitive to the fact that, depending on their life experience, these young adults who aspire to be teachers may not perceive themselves as 'writers'; it is often helpful to present ideas on learning about being a writer as well as relevant practical knowledge about preparing to be a teacher of writing.

Russell (2013) reminds us, "Whatever reflection and reflective practice are, they are not ends in themselves; hopefully they are means to the end of better teaching practices and better learning by students in schools" (p. 80). The rich contributions to professional growth my students and I are able to experience together, including valuable insights that influence shaping and re-shaping of the course design and instruction, are only possible if we understand Russell's point - and make the necessary time and guidance available for meaningful reflection. As teacher educators, individually and collectively, I strongly suggest we need to be looking at

our own practice and asking the critical question: Is the way I am making use of the concepts of reflection and reflective practice doing more harm than good?

### Reflection/reflective practice as professional learning

An assignment teacher candidates are asked to complete in the second semester of my Language Arts class is a multi-modal response to literature (Elliott-Johns, 2011). This calls for, and supports, multiple layers of reflection, as well as effective integration of technology enhanced learning (TEL). This assignment has become a vehicle for motivating teacher candidates' abilities to truly reflect and 'dig a little deeper' – an evocative and commonly used phrase across classes – developing the kind of reflective thinking and writing integral to becoming a reflective practitioner. To illustrate work-in-process towards facilitating more meaningful reflection, I present the nature of reflective writing teacher candidates are encouraged to share for this assignment:

Construct a Written Rationale that demonstrates your understanding of the uses of quality literature for instruction and learning in J/I classrooms. (e.g., *Why* this selection? What does it mean to *you*?) Your rationale should reflect a broad definition of literacy, as shared in class. You may also wish to use examples from your identified selection to support points you make....

Submissions for the assignment frequently offer, enhance, and expand upon answers to the question, *What do I intend teacher candidates to learn when I design and include opportunities to 'reflect' in coursework?* Two reflections shared here illustrate teacher candidates exploring (personal) responses to the literature selected, interrogating why (and how) the author might consider using as a resource in the classroom; inferences, questions, connections made (e.g., text to world), and the changing definitions of 'literacy' and multimodal approaches to 'ways of knowing' (and thus conveying deeper insights into developing awareness of the potential breadth and depth of meaningful reflection on professional learning as beginning teachers. Rich imagery, sharing of personal life experiences, explorations of learning about teaching, contemporary socio-cultural factors, related issues, and evidence of increased abilities to 'think like a teacher' are woven into the fabric of thoughtful, and thought-provoking, reflections:

**#1.** *This book ("The Absolutely True Diary of a Part-Time Indian) will be in any class I work in and I will certainly recommend it to anybody interested in learning more about poverty and indigenous people in Canada. I find it captures images of many of the communities I have travelled to or lived in over the years and is shockingly realistic. Through Arnold's narrative, Sherman Alexie is able to help people understand some of the reasons for the desperate state of being in some first nation communities... It is brutally honest and raw so it couldn't be recommended for all (students) but it is quality literature – cutting, exciting, well written and timely... M. (Moosonee) has been on my mind a lot recently. It may be that it is application time and somewhere deep down I am contemplating going back (to the North). It may also be good memories, or the news reports about A. (Attawapiskat) but, quite honestly, I feel like packing my bags right now....*

Reflections are also indicative of perseverance with professional learning *as reflection* - something I would contend offers the ability to be more effective decision makers in the development of classroom practice. The nature of questions posed call for examination of complex issues and tolerance for ambiguity when there are no easy answers to issues raised in reflections on resources selected for classroom use:

*#2. I'm learning that current interpretations of critical literacy teach students that text is not necessarily literal and they need to dig deeper to construct views embedded in words and images, thus promoting a society that is more empathetic and proactive in preventing social injustice... 'Three Wishes' by Deborah Ellis presents the life stories of Israeli and Palestinian children in their own voices... and one can easily discern the commonalities: effects of war and terror, hope for better futures, firm beliefs in their god... Having discovered this book was banned from a few Ontario school boards, it makes me wonder what are our priorities as adults in society? Do we truly wish to help all children and ensure their rights are not violated? What are we doing, not just as teachers but as members of society, to ensure first nations and aboriginal children are not only receiving an education that is useful to them, but also making sure they have food, water, shelter, and heat in the winter? Unfortunately (or fortunately?) this book has left me with more questions than answers...*

As Dallas et al (2010) suggest, I believe teachers become more effective decision makers when they are reflective about decisions, instead of relying solely on technical, linear, prescribed formulas. The ability to select resources for students with confidence, to plan lessons and units appropriately, while also making adjustments to meet the needs of *all* students, require teachers to make informed decisions that require reflective thinking.

Becoming a reflective practitioner does not occur by osmosis or merely because reflection is included as a component in coursework. We must work with something substantive enough (e.g., a text, an event, a dilemma), something one cares enough *about*, to reflect on it. The professional learning experienced by teacher candidates embedded in the excerpts here came about as a result of clear expectations, opportunities to engage in more meaningful reflection, and guidance/support throughout the process. Assigned work does not call for 'booklists', 'summaries', or 'sample lesson plans' - rather, working to intrinsically experience the self-selected text *as teacher*, e.g., relating to the text and learning to exercise sound professional judgement in its potential use in the classroom - while continuing to think about the how and why of building reflection into their professional practice.

### Further research and practice

As teacher educators, how *do* we actually present opportunities to reflect across the myriad of courses in which this verb appears? Do our teacher candidates truly understand a) the purposes of including 'reflection' and b) critical distinctions between *thinking* and *reflection*? To quote Ottesen, who references Stein's comment, (Stein being a student teacher from one of her classes): "Reflecting, reflecting, reflecting. I think all the time, don't I? I mean, it's not like I don't think. What is it with this reflection thing that makes it so important?" (p. 32).

Stein's question, "What is this reflecting thing?" sounds very familiar (and why is it so important?). Researchers have posed and pursued similar questions (Birmingham, 2004; Calderhead, 1987; Korthagen, 2001; Loughran, 2002; Russell, 2013; Zeichner, 1994). Rodgers (2002) points out that problems emerge in the practice and research on teacher education as a direct result of confusion around the meaning of reflection: What kinds of thoughts qualify as reflection? How can reflection be assessed? How can it be talked about? How can it be researched to determine what effects it has on teacher candidates' learning about teaching?

Further research into the perspectives of teacher educators - specifically in terms of rationale (for) and effects (of) reflection in teacher education, is recommended, specifically in-depth explorations of the work of teacher educators (including my own) who say they include reflection as an essential characteristic of their teacher education programmes.

Note: This is a revised and abridged excerpt from a paper published in LEARNING Landscapes (2014), the full version of which can also be found at:

<http://www.learninglandscapes.ca/images/documents/ll-no15/seelliott.pdf>

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## 6

# Discerning beginning teachers' conceptions of competence through a phenomenographic investigation

*Pauline See Choo Goh, Kung Tek Wong & Chia Yin Lin*

Sultan Idris Education University

More likely than not, the teachers' competency in the teaching profession is an important issue for all educational stakeholders (e.g. students themselves, parents, educators, and educational administrators). For that reason, various measures are put in place to make some form of assessments on aspects of their competence. In the case of Malaysia, a nationally recognised set of competency-based teacher standards has been developed and named the Malaysian Teacher Standards (MTS). It is a new policy direction to make credible judgement on teacher competence ("Malaysia First in Region to Adopt Benchmark", 2009; *Malaysian Teachers Standards*, 2009). Teachers are required to move through the actions embellished in the MTS to achieve high teaching competency, and to do so, these teachers must align their practices with the standards (Goh, 2012). This chapter argues that more so than not, beginning teachers in Malaysia are judged against an externally formulated set of competence, namely, the MTS, and they are seldom called upon to provide their own understanding of what constitutes competent teachers. Sandberg (2000) proposes that to have more accurate understanding of human actions in an organisation, "it is necessary to investigate the internal logic of human activity, that is the individual's way of making sense of their work situations" (Sandberg, 1994, p. 38). For this reason, this chapter reports on a phenomenographic study which gives 'voice' to a rather unnoticed segment of the Malaysian education community – the beginning teachers. The study presented here aims to describe beginning teachers' conceptions of their competence. Besides giving voice to an almost neglected segment of the education community, this chapter also illustrates whether beginning teachers' interpretations of competence aligns with the competency standards framework of the MTS.

## The Malaysian Teacher Standards

In Malaysia, the Teacher Education Division (TED) of the Ministry of Education (MOE) has established a framework of acceptable teacher competence called the *Malaysian Teacher Standards*. It outlines what teachers must possess in terms of their capabilities to provide high quality teaching. The TED initiated professional standards and their interrelationships are shown in Figure 1. The letter 'G' denotes a competent *guru* or teacher.

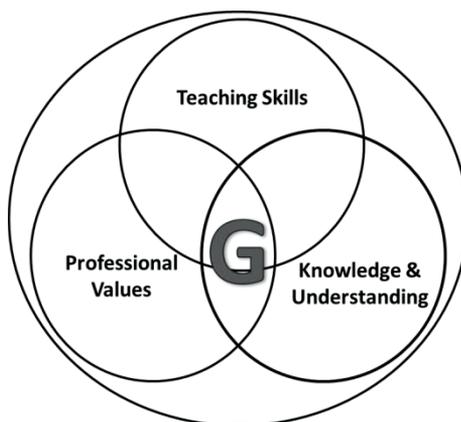


Figure 1. Teacher competencies of the Malaysian Teacher Standards

The MTS consolidates recommendations about the acceptable elements of teaching that include professional value, knowledge and practice (*Malaysian Teacher Standards*, 2009). It acts as a reference to measure teachers' practice which is rigorous and is beyond the minimum requirements of teaching. According to Asariah Mior Shaharuddin, the Education Deputy Director General, the MTS serve "to develop professional values, knowledge and understanding while acquiring the relevant skills in teaching" (Chapman, 2009, para 2), and "this is something we have worked very hard for and is in line with the issue of teacher professionalism brought up during the teachers' forum" (Chapman, 2009, para 7). The specific teacher competencies within the MTS are as outlined in Table 1.

Proponents of the MTS suggests that with the use of rigorous teaching standards will build an image of accomplished teaching thus instilling confidence and positiveness into the general perception of the public towards government schools (Asri, 2009). However, Fenstermacher and Richardson (2005) has argued that any judgements of teaching competency through standards could be highly interpretative and does require high levels of discernment from the evaluators. Measuring competency relegates teachers as mere performers, rather than reflective practitioners (Barnett, 1994). In addition to these concerns, critics have raised the issues about the lack of the teachers' voices and feedback in the standards process (McDonald-O'Brien, 1995). Huntly (2008) contends that legitimate voices must be heard if the use of any measurement standards are to emulate as close as possible the teachers' own experiences of their work. Ingvarson and Rowe (2007) suggest that the individual most affected by any

assessment system (in this context, the beginning teachers) must be allowed to reach agreement on the scope and the content of their work and any underlying principles.

**Table 1** Specific teacher competencies

Professional Values	Knowledge and Understanding	Teaching Skills
Values of self (e.g. knowledge, love, patience, competitiveness & hardiness, vigorous, active & healthy, interpersonal & intrapersonal skills, volunteerism, and efficiency)	Knowledge of content	Creating a conducive learning environment (e.g. safe and supporting learning environments)
Values of the profession (e.g. decorum, integrity, role models, teamwork, proactive, creative and innovative)	Knowledge of students (e.g. to support and develop a pupil's potential)	Planning for teaching & learning (e.g. to design intellectually challenging learning experiences using various approaches, methods and techniques; and to integrate thinking skills)
Social values (e.g. social skills, community spirit, patriotism and love for the environment)	Knowledge of teaching & learning (e.g. pedagogical knowledge to make learning happen)	Assessment and evaluation of learning skills (e.g. to monitor, assess and evaluate the effectiveness of teaching and learning aimed at improving teaching and improving student achievement)
	Knowledge of the use of ICT (e.g. Information and Communication Technology (ICT), media and educational resources in the implementation of the curriculum)	Classroom and behaviour management (e.g. classroom management skills; the management of human relations, time, space, and resources to achieve meaningful and effective learning.
	Knowledge of assessment (e.g. methods of assessment and evaluation)	

### Using phenomenography to give 'voice' to the beginning teachers

Phenomenography is a research approach that seeks to describe immediate and subjective phenomena in the world as people see them (Martön & Booth, 1997). It is also the qualitatively different ways in which people experience or think about various phenomena. The fundamental assumption of phenomenography is that there are a finite number of qualitatively different understandings of a particular phenomenon and the focus is to discover the variation in the experience or way of understanding some aspect of the world. Samplings of the population in

a study must therefore, aim to capture the breadth of variation in understanding in the targeted samples (Bruce, Buckingham, Hynd, McMahon, Roggenkamp, & Stoodley, 2004; Martön & Pong, 2005). The phenomenographic approach has been selected for this study on the basis that it can reveal the number of qualitatively different ways in which beginning teachers conceptualize competency.

A total of 18 beginning teachers (14 females and 4 males) who had started full-time teaching for between 1-3 years were involved in this study. These 18 beginning teachers had graduated from a variety of teacher preparation programs in a teacher education university in Malaysia and were teaching in the primary or the secondary government schools. Although there were no universally agreed timeframe guidelines to determine beginning teachers, this study defined beginning teachers as those who had not yet been formally given confirmed status in their teaching position. In Malaysia, a newly graduated teacher served a three year provisional teaching period before becoming a confirmed staff of the teaching profession.

The beginning teachers were asked questions that dealt with: how much they understood what constituted competency, what it means to be competent or incompetent, the elements that should be present to be a competent teacher, how would they know that they had achieved competency, how would their superior know that they had been competent. All the interviews were conducted in the *Bahasa Melayu* (Malay language) except for two which were conducted in English. At the end of each interview, the voice recording was transcribed verbatim by a research assistant and checked by the first author (who was also the interviewer).

The analysis consisted of a series of steps (Entwistle & Martön, 1994):

- Step 1: The interview transcripts were read and re-read using a method of ‘free’ and ‘open’ coding to find common themes that emerged which pertained to student teachers’ concerns experienced during their practicum.
- Step 2: A more careful analysis was conducted where each text was compared using an iterative reading and re-reading to establish similarities and differences in the interviews. ‘Chunks’ of text with similar or different themes were highlighted with pens of different colours.
- Step 3: Highlighted transcripts were then re-typed into separate documents, representing emerging themes. Each document was read in totality to obtain a ‘picture’ that was documented by the beginning teachers. These themes became the discerned conceptions.

## Results

The findings are presented as categories called ‘discerned conceptions’ which contain the beginning teachers’ conceptions of competency as expressed by the beginning teachers and an outcome space that represents the relationship between those different ways of ‘seeing’ and ‘understanding’. The outcome space represents “all possible ways of experiencing the phenomenon in question, for the population represented by the sample group” (Åkerlind, 2002). It provides the structure for understanding the phenomenon investigated. Each category listed is supported by appropriate quotes from the transcripts which are illustrative of the conception and have been selected for clarity and brevity. It is important to note that the statements used to illustrate the conception does not indicate the number of beginning teachers

supporting the conception nor does it put any particular participant into a specific category. Figure 2 diagrammatically displays the outcome space, summarising the focus of each conceptual category.

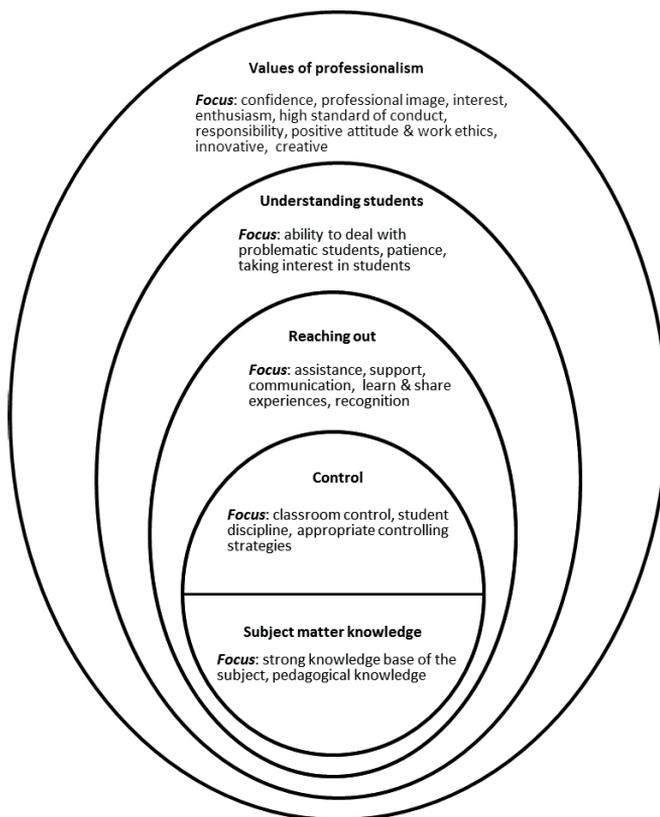


Figure 2. Diagrammatical representation of the discerned competencies

*Category 1: Discerned Conception regarding 'control'*

This conception focuses on competency that relates to classroom management and the management of misbehaviours of students. Beginning teachers tell about being able to manage both the classroom and their students' behaviour with appropriate controlling strategies to enable an orderly teaching and learning environment to happen.

*I am a class teacher. I find classroom management to be very important – control discipline and students arriving late. As qualified teachers, we must be able to handle all this. [Female, Interviewee5]*

*Category 2: Discerned conception regarding 'subject matter knowledge'*

A competent beginning teacher has confidence and has a strong knowledge base of the subject.

*Once I get a subject, I will explore and make sure I understand it well, meaning that if I*

*want to teach something to my students, I must teach myself first. No hesitation or doubt in our subject. I will teach without fear.* [Male, Interviewee10].

Beginning teachers also explain competence in terms of the pedagogical knowledge required to enable learning to occur. Pedagogical knowledge and skills are required for choosing the most appropriate teaching strategies, techniques and learning experiences to engage students in learning.

*Competent teachers, hmm ... someone who can try a lot of teaching techniques to vary teaching to produce an interesting teaching and learning.* [Female, Interviewee15]

The conceptions of classroom and behavior management and knowing subject matter are placed in the inner most circle of the diagram, possibly representing the two skills that are 'core' for any beginning teachers starting out.

### *Category 3: Discerned conception regarding the ability to 'reach out'*

The focus of this conception is the ability of the beginning teacher to reach out for help from their colleagues and individuals outside their school environment. Beginning teachers believe that being competent is the ability to communicate with other teachers in their school to share views and to obtain support as they begin their new role as teachers.

*... at first, I was quite shy to ask as I did not know them [other teachers in school] well or close to them [other teachers], ... hmmm.. but I faced issues, so I realised that if I did not ask, it would be very difficult for me. If I did not ask, I would not be able to handle the problems myself. I wanted to improve myself, I wanted to make teaching more enjoyable, so I got to know some of the teachers, and fortunately, they were also willing to teach me* [Female, Interviewee2].

The second circle includes the conceptions of reaching out for assistance and support. It is about sharing issues and achievements. To the beginning teachers, being competent is the ability to reach out for assistance, not being shy, to learn and share experiences, and to get recognition and support from other teachers, family members and friends. Beginning teachers in this study understand that being a teacher is not just about 'classroom activities' but they also need to focus upon different aspects of their social and emotional understandings.

### *Category 4: Discerned conception regarding 'understanding your students'*

A competent beginning teacher is responsible for understanding the strength, weaknesses and potential of the students being taught. The focus of this conception is the ability of the beginning teacher to understand the students being taught.

*... in addition to knowing our subjects, we must know and understand the students.* [Female, Interviewee5]

The third circle proposes that the concept of understanding students being taught includes a shared focus on knowing what to do with problematic students, having patience and taking an interest in the students' achievement.

*Category 5: Discerned conception regarding 'values of professionalism'*

A competent beginning teacher possesses values of professionalism that is manifested in beginning teachers projecting confidence, ability to fulfill their roles as teachers, possessing enthusiasm, and undertaking their responsibilities well.

*For me, a competent teacher is a teacher who is confident and brave to try something new. Yes, teachers will face challenges that exist in the schools, but must possess patience, important – patience! One more thing, must be strong!* [Female, Interviewee 9]

*... he/she [the competent teacher] is like, knows and is proficient in a lot of matters.* [Female, Interviewee 6]

*... a teachers who is versatile.* [Male, Interviewee 10]

It is heartening to note that the beginning teachers in this study, though relatively new to the teaching profession, are able to discern that being competent in their own eyes and the eyes of the educational community is to maintain a high standard of professional behavior. Positive professional behaviours include a high standard of conduct, responsibility, attitude and work ethics.

*The alignment between beginning teachers' discerned conceptions of competency and the MTS*

This study shows that there are various ways that beginning teachers use to understand about their profession which, when added up, can be called their conceptions of competence. It is encouraging to note that beginning teachers have a somewhat accurate view of what is professional competence and that many actions that they discern as competent practices align with the MTS as shown in Table 2.

It is heartening to see that the beginning teachers in this study, though relatively new to the teaching profession, are able to discern that being competent in their own eyes and the eyes of the educational community is to maintain a high standard of professional competency. An examination of Table 2 shows that many elements within the beginning teachers' derived conceptions reveal close alignment with the standards framework of the MTS, although there is no mention of using ICT in teaching and learning. The low ICT availability in schools and the issue of the lack of internet connectivity in schools could make beginning teachers feel that they can teach better by using traditional chalk and talk methods (*ICT in Teacher Education*, 2007).

Implications for teachers and teacher educators: Some reflections

Above all, the empirical data through phenomenography shows a wide range of conceptions of competency beginning teachers have of their own teaching competency. Although the number of beginning teachers interviewed has been small, it is notable that they are able to describe many of the categories in the MTS. The first and most obvious implication for teachers is to acknowledge that this range of variation exists. As teachers, they need to cater for this

variation in terms of their own pedagogical methods and strategies so as to be aligned to the aims of the MTS.

*Table 2.* Illustrating the alignment between the MTS and beginning teachers' conceptions of competency

The MTS	Beginning teachers
Values of self	Believes that the teaching profession is not only about knowing subject content or putting methods into practice, but the teaching profession is about having belief in their own competences and how these competences can contribute to developing their own professionalism within teaching.
Values of the profession	Some of the values of professionalism they refer to are their ability to project confidence, maintain a professional image, interest and enthusiasm for the teaching profession, a high standard of conduct, responsibility, attitude, positive work ethics and being innovative and creative.
Social values	Being competent is the ability to reach out for assistance, not being shy, to learn and share experiences, and to get recognition and support from other teachers, family members and friends. They understand that being a teacher is not just about 'classroom activities' but they also need to focus upon different aspects of their social and emotional understandings. They are able to discern teaching in a wider context that is beyond the classroom or the school.
Knowledge of content	Mentions about having confidence in the subject content. Maintains that having sound knowledge of subject and content is necessary to facilitate learning.
Knowledge of students	A shared focus on knowing what to do with problematic students, having patience and taking an interest in the students' achievement. They are more concerned about the needs of their students and the effect of their teaching/learning processes upon their students' achievement.
Knowledge of teaching and learning	Synonymous with 'knowledge of content' is having the necessary 'pedagogical knowledge' to present the subject matter.
Knowledge of the use of ICT	No evidence.
Knowledge of assessment/ assessment and evaluation of learning	Some form of formative assessment is necessary to gauge students' understanding of their learning
Creating a conducive learning environment	Mentions creating a supportive learning environment – maintaining class control for lesson to happen; controlling unruly behaviours, maintaining a 'safe' environment.
Planning for teaching & learning	Refers to using the correct pedagogical methods to engage students in their learning, cater to differing abilities of students and to make the lesson interesting
Classroom and behaviour management	Discerns classroom control and using appropriate controlling strategies with misbehaving students as important areas.

The ways in which beginning teachers meaningfully discern their own competencies as a result of their own 'self-assessment' could have the positive effect of enabling them to have less

inclusive conceptions of competency but instead to develop other ways towards being a 'competent teacher'. Beginning teachers have suggested in their interviews that they need to move from the 'core' conceptions (such as 'subject matter knowledge' and 'control') to more expansive and sophisticated conceptions (such as 'understanding students', 'reaching out' and 'values of professionalism'). The conceptions of 'subject matter knowledge' and 'control' possibly represent the two skills that are 'core' for any beginning teachers starting out (Freiberg & Driscoll, 2005; Page, 2008). However, teachers who have more concerns for their students than about themselves have reached a more sophisticated level called the 'impact stage' (Fuller & Bown, 1975). Beginning teachers in this study understand that being a teacher is not just about 'classroom activities' but they also need to focus upon different aspects of their social and emotional understandings. Teachers should note that possessing values of professionalism are important as the teaching profession is not only about knowing subject content or putting methods into practice, but it is also about having belief in their own competences and how these competences can contribute to developing their own professionalism within teaching (Wong, Chan & Lai, 2009).

There is a high possibility that the different range of discerned conceptions of competency may have been attributed to the beginning teachers' prior learning experiences. Biggs (1999) and Ramsden (2003) have suggested that learners are influenced by their prior learning experiences and the learning environment they are immersed in. This has implications for teacher education. Teacher educators may want to design learning experiences, practical activities or assignments that familiarise pre-service teachers towards the range of possible ways of going about teaching. The use of 'diary of competency development' or some form of 'competence portfolio' through reflection and self-assessment may create a positive environment for competence building among pre-service teachers (Bankauskienė, Augustinienė & Čiučiulienė, 2005). However, it is noteworthy to mention that the close alignment of beginning teachers' conceptions of competency with the MTS could indicate that teacher education programs are doing something right to promote as well as to develop teachers towards more conscious and deeper understandings of the requirements of the profession.

In conclusion, this study demonstrates the possibility and appropriateness of using phenomenography in studying how beginning teachers in Malaysia conceptualise their own competency. The use of phenomenography adds to the limited knowledge of beginning teachers' competency in Malaysia by giving 'voice' to a group that has been silent until now. The study provided opportunities for them to verbalise the internal logic of their human activity and make meanings of their actions and work circumstances (Sandberg & Pinnington, 2009). The study indicates that this group of beginning teachers is able to discern conceptions of competency that aligns with the competency formulated in the MTS. The categories of discerned competencies can be a platform for the application to practice and policy.

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## Opportunities and missed opportunities for learning in teacher communities

*Susan Gray*

The University of Auckland

As teacher educators we need to understand teachers' worlds and create conditions that enable them to see new teaching possibilities. Working within a cultural historical perspective Chaiklin (2012) contends that such interventions into human practices aim "[to develop] psychological capabilities" (p. 220). Cochran-Smith (2005) argues a need to investigate systematically our own practice, the policies that influence teaching and teacher education, and help teachers in the "life-long process of learning to teach" (p. 220). The project I facilitated was a systematic investigation of practice that could be classified as a "phase one" study in teacher development research. Borko (2004), characterised phase one studies as relatively small, and context-specific; designers are also researchers, with motivated volunteers intent on building teacher communities (TCs) founded on trust.

Specifically, I was working in an in-service TESOL programme for practising full-time primary and secondary teachers who studied part-time. The capability we were intent on developing was language-focused curriculum teaching, a task-based approach (Ellis, 2003); drawing on principles of second language acquisition (Nation, 1996); and functional grammar (Derewianka, 1998). Some secondary teachers approached me wanting to have the opportunity to work collegially, planning, implementing and evaluating a language-focused lesson sequence in their subject area. This was new to curriculum teaching. It was not until 2007 that the Ministry of Education (MoE, 2007) mandated that all NZ teachers were to bring an explicit language focus to their teaching. The secondary teachers in the course had witnessed that collegial planning was a significant part of their primary teacher classmates' worlds and realised the isolation in which they were working and the disjunction between what they were learning in their TESOL course and school practice. Following Chaiklin's (2012) injunction that a cultural historical approach focuses on not what *is*, but rather, what is *possible*, I began working with the six teachers, pairs

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of science, social studies and mathematics teachers, to create an ideal situation to develop that capability and possibly make a model for departmental planning and resource development. Silverman (1993) argued that, to investigate a phenomenon, a way needs to be found to make it, in this case language-focused curriculum teaching (LFCT), visible. Elliot's (1991) six stages for action research provided such a framework for making LFCT visible: 1, identifying and contextualising the problem under investigation; 2, exploring and clarifying the problem; 3, reconnaissance; 4, constructing a general plan and developing the next action steps; 5, implementing the plan, the LFCT lesson sequence; and 6, reporting back, evaluation and further action.

### *The theoretical underpinning of the TC project*

Action research (Elliot, 1991) provided the methodological framework and understandings from a cultural historical approach (Chaiklin, 2012; Hedegaard, 2012; Vygotsky, 1997) the theoretical underpinnings. Edwards (2012) concisely defines a cultural historical understanding of practices as “historically accumulated, knowledge-laden, emotionally freighted, and given direction by what is valued by those who inhabit them” (p. 23). For all the teachers on the TESOL course, a new demand had been created: to bring a language focus to their content teaching. Unlike the primary teacher course participants who had a tradition of collaborative planning and thus could share their TESOL learning back at their school through this shared activity with colleagues and talk through their knowledge into place, for the secondary teacher course participants there was no such tradition. Working with primary colleagues in the course, they saw this gap, not only in social relations, but also in adapting their new TESOL knowledge to their specific contexts. They had no institutional history of shared planning. Hedegaard (2012) argued that institutional practices are created (and *re-created*) by a person's activities in the activity setting of the practice. People learn when their activities change their social relations in practice and thereby give them possibilities for new activities. The challenge was to create a professional development setting with these potential leaders who saw opportunities for such planning to become an institutional practice. In this we were inspired by Chaiklin (2012) who argued that cultural historical theory is focused on what *can be*, rather than what *is*. The next sections briefly explore the particular concepts from a cultural historical approach that underpinned this study: 1) the place of contradictions and desires; 2) the role of symbolic tools; and 3) the understanding that development of capabilities takes place on intermental and intramental planes.

### What really matters: contradictions and desires

In considering teacher need and what really matters in practice (Edwards, 2012), I drew on an understanding that engagement can be triggered both by contradictions between present and desired states of practice and by desire and will. Fichtner (1999) argued that the process of development is triggered by the need to resolve an inherent contradiction. Fichtner elaborates: “the organism is... forced to move on to another level of functioning which beforehand was not available, or was not possible” (p. 58). Fichtner contends that the tension between previous and desired states determines the specific effects of the contradiction and negates what has come before. Thus, negation can be seen as a motivating force for development to a new level. This

process is described by Vygotsky (1997) as a “dialectical relation of negation of a preceding stage of development” (p. 112). Hence, the motivation for teacher development in this proposed TC was the contradiction teachers were experiencing: they wanted to bring a language focus to their teaching but felt they did not have the conditions and support to plan such an approach. Davydov (1999), on the other hand, asserts that focusing on contradictions and negations ignores that an indispensable basis of activity and “a core basis of a need” (p. 41) is *desire*. Davydov asserts that humanitarian or spiritual desires often generate needs and questions, for example the spiritual desire for beauty is transformed into an aesthetic need to enjoy music, or nature. For teachers, the development process may be triggered, not by the need to resolve a contradiction, but rather by desires to assist students or to work collegially. Davydov reasons that incorporating desire into a conceptualisation of activity also provides a basis for including emotions and will in the activity process. Davydov regards the role of *affect* as critical yet often overlooked, particularly in the initial phase of goal-directed behaviour when the formulation of motive and orientation to task is considered:

The general function emotions perform is [enabling] a person to set a certain vital task; but this is half the work. The most important thing is that emotions enable a person to decide from the very beginning whether the physical, spiritual, and moral means he needs to fulfil the task are available. If they are – the person starts his analytic apparatus to consider the conditions of achieving the goal. If his emotions say, ‘No, the means are not available,’ the person refuses to take up the task. (1999, p. 46)

### *Symbolic tools*

The theoretical input needed to plan LFC sequences was conceptualized as symbolic tools. These were statements of principles and practices from the TESOL disciplinary knowledge base, classified as knowledge about: 1) language; 2) language pedagogy; and 3) second language acquisition (Kaufman & Crandall, 2005). Such symbolic tools are central to the mediation of teacher development. In his use of the term “symbolic tools”, Kozulin (2003) explains the implied interplay between mediation and principles and practices:

Symbolic tools have a rich educational potential, but they remain ineffective if there is no human mediator to facilitate their appropriation by the learner. By the same token, human mediation that does not involve sophisticated symbolic tools would not help the learner to master more complex forms of reasoning and problem solving. (p. 35)

Teachers use principles to make their thinking about practice explicit, such as the need to provide comprehensible input. Practices implement these principles, for example, designing listening or reading tasks. Widdowson (1984) links theory, principles, and practices, subscribing to “the basic belief that effective practice depends on theory but that the theory has to be relevant to the purposes of practice and has to yield principles which can be interpreted and tested as practical teaching techniques” (p. 6). Ellis (2001) suggests that the findings of second language acquisition could be made more accessible for teachers through the provision of summaries that entail a principled selection of findings likely to be of interest. Teachers would use the principles as *provisional* rather than *prescriptive* specifications (Stenhouse, 1975) or to explore puzzles (Allwright, 2005) that they may have observed in their own classrooms and in doing so generate new knowledge (Roblin et al., 2014).

### *Developing capabilities on intra-mental and inter-mental planes*

The teachers particularly wanted to work collegially with a subject partner. They knew full well the need for human mediation as argued by Kozulin. As Vygotsky (1997) explains, “[C]ultural development . . . appears on the stage twice, in two planes, first, the social, then the psychological, first between people as an intermental category and then within . . . as an intramental category” (p.106). Davydov (1999) contends that performing conscious activity necessarily involves the performance of an activity by a collective subject or a team. As individuals perform the collective activity, such as pairs of teachers planning co-operatively, there is the possibility of appealing to the “other” for assistance. Davydov argues that this call is an appeal to the other’s potentiality, that it is imagination that enables a person to conceive of another’s potentiality. Consciousness emerges “when an individual gets the opportunity to see himself through other people’s eyes” (Davydov, 1999, p. 48). In responding to an appeal for assistance, the other realises his or her own knowledge and skills and has the opportunity to make tacit knowledge explicit. Davydov uses the term *interiorisation* to explain how collective activity becomes transformed into individual activity: The individual gains conscious control over a greater range of tools and signs and thus is capable of making more conscious choices from a wider repertoire.

### Methodology: data collection and analysis

Data collection over the four month project was “systematically entwined” with the facilitation process (Vanassche & Kelchtermans, 2015, p. 6). The research data collected highlighted both the development of the teachers’ LFCT capability and the conditions, including facilitation provision, required to develop that capacity. The second aspect is the focus of this chapter. This data set included: transcriptions, audiotaped individual teacher-facilitator interviews in phase one and three, teacher-pair and cross-curricular planning and evaluations discussions; and documents, completed planning and evaluation worksheets for each teacher-pair and teacher and facilitator journals (see Table 1).

Data analysis drew on both deductive and inductive processes (Ellis & Barkhuizen, 2005). Key concepts from a cultural historical approach were used as sensitising concepts in the close reading of the data set but this reading was conducted in as open and exploratory manner as possible. After a number of close readings of this complete data set, a visual table (Miles & Huberman, 1994) was drawn up with the theoretical assumptions outlined and the qualitative coding of units of analysis, from the data set, relevant comments, words, phrases, related to these broad categories recorded. From the assembled tabulated data, the analysis proceeded to define, revise and narrow (Bryman, 2012) the nature of these concepts: what really mattered to the teachers, their contradictions and desires; the nature of the symbolic tools; and the nature of intermental and intramental support.

## Findings: design and implementation of the TC project using theoretical underpinning

Preliminary discussions with the prospective TC members around the co-design of the project highlighted five factors they strongly felt needed to be considered before they would be able to participate: 1) time and structure; 2) being able to work on issues of importance to them and their students; 3) workable collegiality; 4) theoretical input and guidance; and 5) recognition that their work would bring informed change beyond their classrooms. Funding enabled five teacher release days for their participation which spanned four months from the interviews and classroom observations (see Table 1). The initial interviews, which I conducted, and the first stages of the action research, particularly stages one and two examining and categorizing student language and content needs enabled the teachers to surface their specific contradictions, desires and questions that they wanted to pursue. As seen in Table 1, three days at the university campus provided uninterrupted time (two for planning and one for project evaluation); the remaining two were for visiting each teaching partner for observation, and another day of planning. Six stages of action research frame the structure.

*Table 1.* Time frame for the data collection: September–December

Time frame	Data collection
<i>September</i> Phase 1 –Prior to the project In participants' schools	Facilitator Observation: one lesson for each teacher Facilitator Individual teacher interview:
<i>September</i> Project introduction University campus	Dinner meeting Final Project details outlined teacher pairs and facilitator
<i>October, 2 days</i> Phase 2 – Project University campus	<i>Stages 1-4</i> Planning and resource development days
<i>October- November</i> In participants' schools	<i>Stage 5</i> Implementation of the eight lessons Facilitator observes two lessons for each participant Each teaching partner observes partner teach one lesson in the sequence
<i>End of November</i>  University campus (1 day)	<i>Stage 6</i> Evaluation of eight-lesson sequence and project in teaching pairs and cross-curricular group Written evaluation reports  Each teacher hands in public version of journal and written evaluation report
<i>December</i> Phase 3: After project completion In participants' schools	Observation: one lesson for each teacher: Individual teacher interviews: based on journal and written report

Evaluating the project time frame, all teachers thought the two planning days essential but suggested these could be held during non-teaching time. Another day after the “Evaluation day” was also suggested: useful for sitting down and “addressing the adjustments we would like to make to tighten up the planning so the eight-lesson sequence could be left for the whole department within the school to utilize” (SS1: Written Evaluation). Roblin et al. (20014) argue for the importance of the knowledge generated by TCs to be shared more widely than the project and this was certainly a desire of these teachers that was not met in this cycle.

Workable collegiality was addressed by discussing with those secondary teachers currently undertaking TESOL study: a) possible involvement; and b) if so, with whom they would like to work: the two maths teachers were already taking the course and wanted to work together; there was only one science and one social studies teacher and they were particularly keen. These two I called anchor partners and they chose their partner from keen TESOL graduates in their subject.

Their fourth stipulation, theoretical input and guidance, is discussed in the following section.

The fifth, wider influence was in part achieved through liaison with their principals: in gaining their permission to involve the teachers, school and students; keeping them informed over school visits and hosting them at the campus Evaluation day (Stage 6) when each teacher pair presented their key findings. However, there were missed opportunities for further sharing of knowledge on a wider scale which could be remedied in future projects.

Important to the teachers was that, as facilitator, I provided them not only with time and structure but also theoretical input, guidance and disciplinary knowledge. The project manual I provided consisted of: a) summaries of key readings around the integration of language and content, and curriculum design; b) worksheets based on Elliot’s six action-research stages which took teachers from identifying and categorising student language and content need, deciding on two principles which would underpin their lesson design, planning a lesson sequence based on a grid (Gibbons, 1991) detailing the pedagogic activity, language function and form, and a completed exemplar, observing their partner teach one of the lessons and evaluating the lesson sequence and the project; c) lists of 20 language functions – for example, describing change and the grammatical structures for realising these, adapted from Houston, Commins, and Lambart (1989).

The rationale for a project manual was that relevant theoretical input would be readily available to guide their pair-work and would be useful later for work with school colleagues (see Gray, 2009). Here I will focus on three major changes I would now make:

1. Key in any LFCT is identifying student need and the language focus of the lesson sequence. There is an excellent NZ resource, ELLP (MoE, 2008), to guide teachers in specific identification. Similarly in identifying the end-product of the lesson sequence, an excellent resource (Humphrey Droga, & Feez, 2012) helps teachers identify relevant grammatical features of particular text types, for example in the case of the social studies teachers in the project describing change in Tokelau. I, as facilitator, could have intervened more directly in helping with identification of student need - for example the social studies pair noted their students needed to *read for understanding* but this was not pursued in depth in their plan. But crucially, as one of the teachers noted “I would like my teaching to more explicit for the students to be involved in defining their own needs”, ways could be found to more directly involve students in their own needs assessment.

2. The second change the teachers suggested was that one lesson-design principle would be sufficient.
3. Gibbons' planning grid and provided exemplar were seen as helpful tools. Making their plans readily available to colleagues was another way they intended sharing their new knowledge. Guidance or mediation with subject partner is discussed in the next section but this was also provided in the cross-curricular discussions that were held during the planning days when each pair explained how they had interpreted the worksheets for Stages 1-4.

The teachers needed to work collegially to develop their LFCT capability but also have the opportunity to reflect individually on it. The worksheets provided the teacher pairs with a structure to plan implement and evaluate their lesson sequence. Many doubts, questions and frustrations as well as insights and satisfaction were triggered in the process. Having the opportunity to challenge each other and be challenged, however, enabled the teachers to reach new levels of understanding of ways language could be integrated into their curriculum teaching.

Having knowledge can at times be a lonely and burdensome thing. Vygotsky's (1997) idea of the zone of proximal development comes to mind – "I had no one in my specific subject area to challenge me and I could not improve without the intellectual stimulation and challenge of working beyond my comfort zone" (SS1 Written Evaluation) (Gray, 2012 p. 442).

On the other hand, journals provided valuable space for the individual teachers to capture the action for later reflection, and as a record of their own development.

### Concluding remarks

This chapter has addressed the under-reported role of the facilitator in a TC action research project. Retrospective analysis of the facilitator's input has highlighted not only the learning for all but also missed opportunities. In part, the latter have been rectified, by changes in symbolic tools and increased collegial opportunities within the TESOL programme. Making this TC learning visible invites further critique on such research-informed projects with teacher-educator facilitators and teachers. Of particular interest are the theoretical assumptions underpinning such collaborations and the way, the knowledge generated within the project is shared more widely. Such work, as Chaiklin (2012) argues, extends the possibilities of actual practice.

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## Learning spaces built on students' resources

*Hafdís Guðjónsdóttir, Karen Rut Gísladóttir*

*& Anna K. Wozniczka*

The University of Iceland

*What we try to do when children come to us and we begin to teach Icelandic, is to build bridges, that is to link mother tongue to Icelandic, transfer the way they use their mother tongue in order to learn another language and empower it at the same time, I mean the mother tongue. I know it from my own experience that if you don't use your mother tongue and you don't "cultivate" it, then you can even regress ...  
(María)*

María is an elementary teacher working in Iceland. Her words above highlight how she sees herself as building bridges between languages in her work with students of immigrant background. These words encapsulate how demographic shift and growth of migration is leading to teachers' increased awareness in working with diversity in Icelandic schools. The growing number of students with international backgrounds brings different resources; cultures, experiences, languages, interests, abilities, strengths to educational settings. This shift calls for changes and a just and equitable multicultural education that helps students find personal happiness and fulfilment, develop curiosity, enjoy learning and practise critical thinking. Moreover, this entails that teachers build bridges between cultures and languages. The purpose of this study is to explore how learning spaces, designed for students with an international background, are negotiated. The goal is to develop a better understanding of how teachers draw on students' linguistic, social and cultural resources.

### Theoretical framework

In this study we use the idea of learning spaces to explore how teachers and students draw on their linguistic and cultural resources in the process of learning. These learning spaces include social contexts, networks and resources that encourage, develop and nurture learning, supporting

students to become agents of their lifelong learning and active participants in society. The concept of learning spaces allows us to explore how the issues of social justice, equity, democracy, and human rights are embedded in the learning process (Banks, 2007; Gee, 2004). This process is most effective for students when “learning is a part of a highly motivated engagement with social practices, which they value” (Gee, 2004, p. 27). Many learning spaces are developed within the school and in each classroom. These spaces are created or opened up both by teachers and students and encourage teachers to use their agency to increase students' participation and sense of belonging in school and society (Banks, 2007; Booth, 2010; Gee, 2004).

Teachers, through daily interactions with students, can purposefully co-construct learners' identity and sense of belonging (Harrell-Levy & Kerpelman, 2010). One way of empowering children through education is by noticing and making use of their cultural and linguistic resources. Rodriguez (2007) characterises resources as personal strengths and qualities, which emerge from and shape life experiences. Similarly, Wertch (1998) considers cultural resources as mediational tools for people to make meaning and act in the world. In the same way, culture, including language, is seen by Gonzalez, Moll and Amanti (2005) as ‘funds of knowledge’ or in other words, resources to draw upon in the process of learning and empowering of students.

For understanding how learning spaces are negotiated we use pedagogical and sociological frameworks for culturally responsive teaching to explore how teachers draw on the personal, linguistic and cultural resources of students of international backgrounds. This allows us to explore the human intervention that teachers use in creating learning spaces that accommodate for diversity. Furthermore, it gives attention to how teachers and students negotiate the historical, institutional and political constraints embedded in the spaces where learning takes place. Such a critical stance allows us to understand how individuals employ lived experience of empowerment to transform education and stimulate critical reflection (Freire, 2008; 2009; Giroux, 1997; 2001). This emphasis towards education and pedagogy is not a process of learning about the other, but rather understanding one's own position in relation to others, one's own otherness and how it affects the dispositions one develops in educational settings.

The way learning spaces are negotiated by individuals draws attention to how education and the learning process are influenced by political tension (Freire, 2009). A critical social justice perspective suggests that people with their different abilities, characteristics and backgrounds should be “celebrated and valued, not quashed, ignored or assimilated” (Ryan & Rottmann, 2007, p. 15). Critical social justice does not advocate treating everyone the same because that is likely to expand inequalities already in place. Rather, individuals and groups should be treated according to needs, interests, strengths and abilities; that is, they should be treated equitably. Treating individuals equitably rather than equally provides the potential to counteract existing inequalities.

Advocating for critical social justice seeks a world that promotes equality over equal treatment. This emphasis is intertwined with the concept of inclusion, an on-going process affecting everyone as it focuses on diversity and how schools respond to and value a diverse group of students. Inclusion aims at creating learning spaces allowing teachers to recognize and disrupt inequalities presented in exclusion and discrimination against diversities such as social and ethnic circumstances, religion, gender and ability of students and their families. In this study, we use examples of teachers embracing students' resources as a lens to understand the process of creating learning spaces built on ideas of critical social justice and inclusion.

## Method

This is a qualitative study intended to gain a deep understanding of the learning spaces teachers and students create through their daily interactions and presence. The purpose of the study is to explore how learning spaces originated for students with an international background are negotiated, with the goal to develop a better understanding of how teachers draw on students' linguistic, social and cultural resources. The main research question is: How do teachers draw upon the personal, social and cultural resources students bring into the school settings as they create successful learning spaces for students with international backgrounds?

### *Participants*

This study is a part of a bigger research project, but in this chapter we are reporting on data collected in three compulsory schools in Iceland. The participating schools were purposively selected through indicators such as emphasis on social justice and inclusive practices, average grades and test scores, and external evaluation by school authorities. Administrators in each school indicated teachers they perceived as working successfully with students of international background. Thirteen teachers and their students participated in the study. All names used in this chapter are pseudonyms.

### *Data collection*

This is a case study that builds on qualitative data collected through varieties of methods. For example through 30 semi-structured in-depth, 60-120 minutes long interviews, informal discussions, and 14 participant observations. The data was collected through audio and video recordings and photographs. Semi-structured interviews were chosen to elicit the views of the participants as clearly and accurately as possible (Flick, 2006; Kvale, 2007). This allows us, researchers, to organize the contents of the interviews, while giving the participants opportunities for open discussion. The participants were asked to describe their ways of working and learning – their opportunities and challenges. Through a narrative account of their teaching experiences, they were invited to tell their stories concerning their teaching of students with immigrant background (Clandinin & Connelly, 2000). In addition we visit nine classrooms to collect data through participant observation using video recordings, photography and logging. To make the observation as natural as possible we participated in the classrooms by intervening and supporting students as needed, intending to be more like a support person than a researcher. The narrative descriptions generated by this approach provide us with an understanding of the representations of the educational settings and professional actions and interactions.

### *Data analysis*

All interviews were recorded and transcribed word-for-word in order to retain the voices of teachers. Field notes were generated using the video recordings, the photographs and our logs. Data from the interview transcripts and field notes was analysed through the qualitative procedures of content analysis, coding and constant comparison of data. At first, all four members of the research team individually read the transcripts and coded data. Our next step was to further analyse the data together, either in pairs or in a group of four, by comparing, categorizing and coding the data with regard to the pedagogical and sociological framework for culturally

responsive teaching. We used Atlas.ti software to facilitate the process of data analysis and to manage, extract and explore meaningful information from a large amount of data. The aim was to identify how the teachers drew on student resources as they created learning spaces for students with an international background.

### *Ethical consideration*

The study was reported to and approved by the Data Protection Authority (DPA) and informed consent was translated into several languages, requested of and granted by all participants and students' parents or legal guardians.

### Creating learning for all

The findings reveal three main themes emerging from the interviews and observations. The first theme illustrates how the teachers notice and make use of students' resources, including mother tongue, culture and previous knowledge. The second theme illustrates bridge building as the teachers use students' resources to bridge the way for inclusion. The third theme is the creation of learning spaces for all students.

### *Resources*

All the teachers in the study emphasize the importance of mother tongues. Elsa argues:

*I'm also trying to empower them, and make them feel that they are so rich, that they know more languages, because often they know more than one language. They come here and sometimes you can hear someone say: 'ahh, I don't know what to do with him, he can't speak.' Then I say, "Wait, you can't say this. He is Russian, and he speaks Russian - his mother tongue. And he grew up in Lithuania and he knows Lithuanian as well. He was in a Polish school there and he knows Polish as well. Although you two can't communicate, because he doesn't speak Icelandic or English, you can't say he can't speak at all.*

Often the teachers have to open up a space for the students to use their first language to get them to communicate or to understand the subject being taught.

Another re-emerging theme is the importance of making use of students' experience and background from their homeland. Hulda says: *I want us to make use of the culture of these children that come here and to enjoy getting to know it.* Margrét is a math teacher and in her classroom she has a world map on one of the walls: *I make sure to let all students show where they come from, and they feel so good with this little thing... It is important to have something like this to give them an opportunity to talk about themselves.* We noticed that the students have marked the countries they come from and the places they have visited. This gives the class an opportunity to discuss characteristics of different places and cultures, often through mathematics.

Teachers show initiative in supporting students with immigrant background. Sunna decided to create new books. *We try to find something that suits the children, like now, we have six-year-olds, it's difficult to use regular books with them, so I prepared books with letters and drawings that build on their interest.* Sunna also uses linguistic and cultural resources of other children in order to support newcomers:

*When Gabriella and Max arrived, because Claudia is so good at both languages, I asked her to explain using her mother tongue... because I couldn't explain to them in Icelandic and they*

*didn't understand, so Claudia got my permission to explain to them what they were supposed to do and this went very well, to have her help, it wouldn't have worked otherwise.*

The teachers seem aware of the underlying traditions of social events in students' different cultural worlds. For Elsa it is crucial to address the social part of schooling in Iceland. To avoid possible misunderstandings, she discusses with parents and children traditions and customs in Iceland, including birthdays, school events, and school trips, and encourage them to participate. Similarly, Una learnt that "there are other rules about recreation time in our country than these children are used to" and that "the parents might have another work schedule...they do not take a leave from work", therefore she feels it is important to include parents with international background in the discussion. Getting to realize students' resources and drawing on them in teaching is crucial for successful learning and inclusion.

### *Bridge-building*

Field notes from observations and interviews with teachers clearly illustrate how teachers are not only aware of the richness students with international background bring, but also intentionally bridge their linguistic, cultural and personal resources to support students' meaning-making and to increase their confidence, participation and sense of belonging. As María summarises:

*First and foremost we help them to cultivate their mother tongue, they will be stronger and stronger and if they are good in their mother tongue they will become good in Icelandic or in other language that they are learning. And then there is also this feeling of being secure, you know, and of 'I can do this.' We try to teach them to think that they can do it, that it is not a problem, of course it can be difficult, but I can do it, step by step, don't give up, look at me, I managed, I spoke no Icelandic. We use also role models to lift them up.*

We observed Maria during a class about the human digestive system. She had students from different backgrounds and with various levels of Icelandic. During this class she used different approaches and children were allowed to discuss, work in pairs or use a computer. Whatever method they chose, she encouraged them to use their mother tongue. She explains:

*...so for example, let's say we learn about human body in the 9th grade, nice book but with a bit difficult text, and a person has very often to learn it in own mother tongues, because she doesn't know it in her mother tongue and only in Icelandic. You know, 'What is gallbladder?' 'I don't know it.' 'Hmm, OK, let's try finding it in your language.' We have to try to teach children also in the own language.*

Rut emphasises the importance of balancing both mother tongue maintenance and new language acquisition:

*We need to make sure that of course they can speak their mother tongue, and we need to make them realise that they are learning a new language, so they have to activate some parts in their brains.... but we can't just say: You can't speak Polish... Then he starts to feel ashamed about his origin and that is very serious.*

She feels it is her role as a professional to *show that it is possible to teach these children in four years with a great result, if a person has an education, understanding, good conditions and administrators that support the same vision.* For Margrét, it is important not only to have a professional background, but to consider personal experience as a resource as well: *One talks about his/her own experience and that works well. They quickly spot whether you talk about something*

*because you know and can, or whether you just talk nonsense.*

Berglind, whom we observed while teaching construction of poems, invited her students to create poems about the seasons. In the process of poetry writing, she discussed with students not only the seasons in their home countries and their acclimatisation in Iceland, but also asked them about poems or types of poems they knew. Moreover, when finding rhymes, students could use words in their mother tongue too.

Another teacher, Stefán, builds conceptual understanding in subject learning through the use of the students' first languages:

*As we teach science it's important to know how students express different topics in their first language. In talking about health with a student of Portuguese background, I begin finding out how he talks about it in his first language. If that is difficult I create an opportunity to develop that vocabulary in his first language, which I then use to teach it in Icelandic.*

Rósa notices the empowering strength lying in mathematics:

*It's so nice to observe them in maths, because it's an international language. And often they feel well during math classes, especially when we have algebra and there is not much to read. And if they know it, they blend in and are as the others. And they are so happy... so maths is a good base to work with, to make them feel good... And then I use cooperative learning.*

We observed Rósa using cooperative learning in her classroom. Instructions for students were on the walls and they worked together and helped each other. We noticed that the ones that were good at maths helped the others and Rósa told us *they are quick to integrate in the class, because others ask them for help. So if we have algebra and I have strong newcomers I can see them flourish very quickly through cooperative learning.* Knowing the students' strengths helps the teachers build the bridge to the language and culture.

### *Learning spaces*

In each classroom, through various practices and different school subjects, we could hear and see how the learning spaces, built on resources of all – students and teachers, emerge. The underlying idea for Margrét is to

*get the group together, to talk with them, and to talk about tolerance, that we are all different and that we should welcome others. So I have a certain aim... You don't have to turn off my candle so that yours shines brighter. I discuss this with them often, that they should not promote themselves over others.*

Margrét uses cooperative learning method to create learning spaces for her students to learn together, teach each other and support one another.

On the day we observed Katrín, she was teaching creative writing in 6th grade. She began by showing her class a picture of a family in a refugee camp. Katrín discussed the picture with the students and asked them to write a story from the perspective of one of the family. First they were supposed to make a mind map, individually or together and she drew a model on the whiteboard. The next step was to write the story and Katrín encouraged the students to discuss with one another and use maps or other books as reference. As the students worked on their stories, Katrín walked around the room to confer with them individually and got them to explain their plot and sentences. She focused on their vocabulary use, and asked if they knew another word that could be better suited or if they could replace informal words with more literary language. She encouraged them

to embellish their sentences with adjectives to explain or make the text more visual. She also discussed different sentence building. In the end everyone turned in a story and a mind map they used to construct a story. Their sentences were complete and rich in language, using adjectives and different sentence structures in the text to describe events, people and things. Katrín showed trust in that her students were working, she never stopped them talking together and she gave them time to think. The students trusted one another with their stories, telling about their plots and asking for advice about word use from each other.

The learning space created by Katrín mirrored inclusive practice in the way that she responded to, accommodated and accepted individual difference. The space was characterized by trust, the teacher trusted that students were there to learn and the students trusted her and each other. Transforming learning was a joint enterprise between the teacher and learners and the students had agency in their learning. Katrín managed to create a learning space that nurtured learning, supported students to develop a vision for their future and being agents of their lifelong learning: *In working with students, I want them to be happy individuals who know Icelandic and who can do what they want in the future, instead of being forced to do something because they don't have the language or education to do what they would really like to do.*

Rut has also a clear vision of her teaching:

*First of all, it is this insight, that a teacher reaches a student, gets to know him... it takes me even a whole semester to get to know each student and their strengths and I do it by giving them all kinds of projects. I work with students step by step, so that I can get from them anything I need to work with, so that they learn to become responsible...I always look inside them. My mission is to get the light in there and to activate it and this is actually my reward.*

Rut creates learning spaces where every individual can flourish on his/her own terms and although it is a very tough mission, she believes it is possible.

## Discussions

The study helps us explore and understand how teachers draw upon students' linguistic, social and cultural resources, as they create successful learning spaces for students with international background. Through critical pedagogy we see how these teachers use lived experience to create learning that empowers their students. Moreover, they build partnerships and engage in dialogue with their students as they teach by praxis (Freire, 2008, 2009; Giroux, 1997, 2001). They do not only possess broad knowledge and professional experience on working with students with international background, but more importantly, are enthusiastic, creative and ready to learn. The teachers feel a strong sense of responsibility towards their students for the present-day as well as for the future and they include a long-term vision in teaching and building learning spaces. They intentionally bridge their knowledge and experience, as well as draw on students' resources (Rodriguez, 2007). In so doing, the teachers move beyond the superficial level of multicultural education in addressing cultural aspects as authentic food, clothing, and social events. Instead, they emphasise the importance of individuals negotiating the historical, social and institutional forces influencing their lives (Gonzalez, Moll & Amanti, 2005). For example, if they use cultural artefacts (e.g. a world map) it is with the aim of identifying, discussing and reflecting on students' feelings, thoughts, experiences, traditions, beliefs and intentions (Riojas-Cortez, 2001).

In their practice, teachers are sometimes challenged when the resources of students of

international background clash with the values, traditions and customs typical for Iceland. One way of dealing with this challenge is getting to know students and their families with the intention of exploring their culture reflecting and learning about similarities and differences. What distinguished these teachers is their consciousness of what happens if students' resources, experiences, language, interests, abilities and strengths remain unnoticed, and their willingness to do anything to prevent any negative, academic or social consequences (Ryan & Rottmann, 2007).

Finally, the teachers set clear expectations for learning and achievement for all students, but at the same time they give students a space for working and encouraging their participation, inquiry, discussions and cooperation. They manage to create learning spaces where social justice and inclusion, although not spoken of, prevailed in everyday interactions and practices.

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## 9

# Developing an EFL pedagogy support framework for EMI instructors in Japan

*Monica Hamciuc<sup>1</sup>, Yoichiro Sato<sup>2</sup> & Naoko Kojima<sup>3</sup>*

<sup>1</sup>Miyazaki International College

<sup>2</sup>Ritsumeikan Asia Pacific University

<sup>3</sup>Doshisha University

As university's role as a place of global civic education rises, more classes use English as a Medium of Instruction (EMI). EMI in Japanese higher education has high expectations regarding Japanese students' English ability. The private university where this study was conducted recruits nearly 50% of its students from overseas. This unique setting offers opportunities for domestic students to gain the same level of English proficiency as students who study abroad. The curriculum requires Japanese students to earn 20 credits in EMI classes for their graduation, hoping thus to maximize interaction between domestic students and international students on campus. However, for many weaker students, English is a barrier to understanding the course content. This chapter introduces the transitional Bridge course as an experimental team-taught EMI and describes the process of creating language support in this EMI class. It also discusses the possibility of this practice as a means to improve EMI classes in Japan.

### TESOL theories

Among EFL experts, EMI is getting more attention as a means to internationalize universities (Byun, Chu, Kim, Park, Kim & Jung, 2010; Hengsaddeekul, Hengsaddeekul, Koul & Kaewkuekool, 2010; Ota, 2011). In the case of Japan, as the Japanese student presence abroad is declining, the responsibility of Japanese universities to instill global citizenship domestically has grown even more. Thus, internationalization of the Japanese campuses is urgent, and many see EMI as one solution. Both instructors and universities can benefit from EMI in an EFL setting. Universities can recruit more international students and bring diversity to the campus

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*Author contact:* [mhamciuc@sky.miyazaki-mic.ac.jp](mailto:mhamciuc@sky.miyazaki-mic.ac.jp)

(Byun, et al., 2010) and they can also boost their status in international academia (Hengsaddeekel, et al., 2010). The presence of international students increases opportunities for the Japanese students to communicate in English, thereby raising their proficiency and helping them gain appreciation of diverse perspectives (Byun, et al., 2010). The presence of international instructors on campus further boosts these benefits (Hengsaddeekel, et al., 2010).

In Europe, more and more universities started to offer EMI courses around the year 2000 (Byun, et al., 2010). Some Asian countries, especially former British colonies, also started EMI courses (Byun, et al., 2010; Ota, 2011; Chang, Kim, & Lee, 2011). EMI has spread to Korea, Thailand, and Japan and is on the rise in other Asian countries too. In Korea, the government set the goal of conducting three percent of all lectures in English by 2010 and distributed funds to the complying universities, thus making EMI a major trend there (Byun, et al., 2010).

Japanese higher education lagged behind in adopting EMI programs and courses. However, in 2009 the country launched the Global 30 project, which initially designated 13 universities to offer degree programs in English (Global 30, 2012; Ota, 2011).

The several years since the initial global spreading of EMI have revealed various problems. First, greater demand for English language learners to have a high proficiency in English has led to an increasing learning gap (Hengsaddeekel, et al., 2010; Chang, et al., 2011). Interaction between students who have sophisticated English and those who do not has proven to be less effective than anticipated. As a result, students encounter two learning barriers, the content of the class and the language (Chang, et al., 2011; Ota, 2011). In addition, there are few instructors who are able and willing to conduct an EMI class because of its heavier workload. High English proficiency and depth of knowledge in the field are not sufficient to conduct an EMI lecture when the instructor rarely has knowledge of second language acquisition or applied linguistics (Byun, et al., 2010). Therefore, most EMI instructors struggle teaching language learners (Timothy, 2005). They face challenges in adjusting their curriculum and seeking more accessible ways to teach concepts or theories (Ota, 2011).

This study introduces collaboration, in the form of team-teaching or pedagogical support, between language instructors and content teachers as a possible solution in EMI. The team-teaching approach has been used for 20 years in English speaking countries, with nationwide applications in Canada and Australia, due to its effectiveness (Davison, 2006). Team-teaching is collaboration among instructors who share an educational goal. They cooperate periodically and lead students to better learning (Mehisto, Marsh & Frigols, 2008). There are many types of team-teaching, but the two categories determined by Davison (2006) are most relevant to our discussion. These are low collaboration and high collaboration team-teaching. In a low collaboration approach, teachers plan lessons together, but they have separate class sessions and individually evaluate students. In a high collaboration approach, instructors write their syllabus together and use common assessments. Team-teaching is an attractive practice since teachers can improve their lessons through idea exchange, can develop their curriculum and improve their teaching skills (Timothy, 2005). Despite the proven effectiveness of team-teaching, only a few institutions practice team-teaching, and very few instructors have experience in team-teaching. According to Timothy (2005), two reasons explain why team-teaching is not popular—it costs more than solo teaching, and it involves a higher risk of conflict between teachers.

## Study background

### *Language requirements*

Students at the institution where the present study was conducted are required to take the TOEFL-ITP test right after entering the university. Those who score 500 or above are permitted to enroll immediately in any EMI course, and the rest are placed into four different Standard Track English levels according to their scores. Students can start taking transitional Bridge courses, which are EMI courses specifically allocated for students with lower English proficiency level, once they have completed the second level of the Standard Track. They can start taking any EMI classes after finishing the third level. Students who have completed the second level of the English Standard Track are expected to be able to understand a 1 to 2-minute routine conversation on topics such as going shopping and introducing recipes. In terms of writing ability, they write four 150 to 200-word paragraphs in one semester. As for reading skill, students can read texts of approximately 300 to 360-word length every six weeks about different topics such as life in the city and population, family, business and finance. Also, students read ten graded readers, which add up to a total of 7,000 to 10,000 words.

The Bridge courses are part of the 20 EMI credits required for graduation, but students can take only up to six credits from Bridge courses. Therefore, they have to take at least 14 additional credits from regular EMI classes. Making the Bridge courses effective and successful is thus essential for supporting student learning in EMI. However, the expected English fluency at the completion of the second level English course is far below the fluency level required in the Bridge courses, and the university's program managers do not address the problem seriously. After the EFL instructors involved in this study had observed EMI classes, they became aware of the huge gap and designed a team-teaching practice to help reduce this gap.

### *Evaluation criteria in the Bridge course*

The Bridge course discussed in this study built in an assignment structure to improve students' reading comprehension and paragraph writing. First, more weight was given to required readings and paragraph writing assignments compared to regular content lectures. Thirteen reading comprehension quizzes were given for the total weight of 30 percent, allowing students to drop their three worst scores. Ten paragraph writing assignments were given for the total weight of 30 percent.

The large number of reading comprehension quizzes aimed at ensuring that students completed the required weekly readings. The paragraph-writing assignment utilized an online learning environment and course management called the Blackboard Management Learning System. Students were asked to answer questions raised by the instructor or respond to other students' comments in a virtual Discussion Forum on the Blackboard System to deepen their understanding of the course content.

The content instructor taught the first half of the course alone, and the EFL instructors joined in the second half. The EFL instructors prepared a reading guide sheet every week in the second half of the semester and spent 10 to 15 minutes reviewing answers at the end of each class. Additionally, the EFL instructors ran short student discussions in small groups to support reading comprehension in preparation for the following week's lecture. 103 students registered

for the Bridge course discussed here. Usually, about 15-20 percent of the students never show up to the class sessions. Moreover, as scores for the quizzes and paragraph writing assignments were posted on the Blackboard System, students gradually dropped out mid-course. As of the tenth session (out of fourteen), the number of attendees stabilized around 40.

## Teaching practice and discussion

### *Team teaching*

To prepare for this project, the language instructors observed content classes, visited another university where team-teaching was an established practice and attended conferences in Japan and Korea. All instructors had several meetings to plan the intervention together, before and during the semester. As a result of these preparation meetings, the EFL instructors designed a template for a reading support worksheet that included a glossary, comprehension questions, and in-class discussion topics. The team teaching approach emphasized four main objectives: 1. improving reading skill; 2. improving paragraph writing skill; 3. raising final exam performance and 4. sustaining student motivation.

The creation of the reading worksheets was a lengthy and difficult process. The two language instructors spent some three months to develop the reading support, using the classroom textbook, *Japan in a Dynamic Asia* (Sato & Limaye, 2006). Worksheets were prepared only for Chapters 7 to 12 since the language support was only provided for the latter half of the semester. One worksheet with 10 to 15 reading comprehension questions, a detailed glossary, and two or three preview/ discussion questions was created for each of these chapters.

During the first half of the 2012 fall semester, the language instructors collected student feedback regarding the course several times. Three issues emerged from the feedback. First, students pointed out the difficulty they encountered in understanding the textbook and the lectures. Second, they admitted to their lack of background knowledge. Third, students also mentioned they lacked note-taking skills. Based on student comments, the EFL instructors posted reading and study tips three times during the first half of the semester on the Blackboard Learning System. First posting emphasized the importance of organizing time to understand the textbook since few students took the time to read before class. Second study tip was on how to recognize keywords in the text. Students were given a list of keywords each week from the assigned chapter to assist their focused reading. To improve the students' note-taking skills, one of the language instructors demonstrated taking notes on the blackboard during the lecture. In addition, links to videos on taking notes were shared on the Blackboard Learning System.

In-class language support began in November 2012 in the form of reading worksheets and short review sessions by the language instructors at the end of each lecture. In the first and second weeks, language instructors showed students how to use the worksheet to guide their reading. Each worksheet was distributed in class and uploaded on the Blackboard Learning System weekly. The answer key for the worksheet was read orally by the language instructors and showed on PowerPoint slides.

Student performance on quizzes and paragraph writing showed improvement after making the reading support worksheets available.

### *Student survey*

To learn about the students' background knowledge of international relations, their perception of the utility of language support, as well as worksheet usage, the researchers created a survey. The post survey (n=32) was conducted after implementation of the language support. The survey was a 4-point Likert scale and had 33 items.

The number of respondents (32) represented roughly 30% of the number of students who had originally registered for the course (103) and 80% of the students who attended the course until the end (40). 47% of the respondents said they regularly used the worksheets to prepare for the class. More than 20% of students thought they had learned content and improved their English ability, especially writing skills. 10% of the students said that they spent more time to prepare for the class. Also, more than 80% of them answered that they were planning to use the reading worksheets to prepare for the final exam. On the other hand, most students did not feel that the worksheets were beneficial in terms of helping improve note taking skills and vocabulary. Almost 70% of the students did not use the worksheets for review at home after each weekly lecture. This could mean that students benefited more from the worksheets in pre-lecture preparation, but less in the post-lecture review or in-class note taking. It is unclear whether or not this limited utility of the worksheets is also a product of the student's lack of study skills or the mismatch between their language skill and the required level of fluency.

### Data analysis and discussion

After factor analysis, three factors—student perception of the worksheet, background knowledge, and worksheet usage—were found based on nine out of the 33 survey items. A regression analysis was conducted to see if any of the three factors predicted student performance on the final exam. Correlation between the three factors and the final exam scores, quiz scores, and paragraph writing performance was tested as well.

None of the expected factors (TOEFL score, background knowledge, worksheet usage) turned out to be a reliable predictor of the student's quiz and paragraph writing performance (Tables 1 and 2), and the quiz and paragraph writing scores did not predict the final exam score (Table 3). Several reasons can be speculated, such as that the gap between the course rigor and the students' ability was too large to produce enough variance in the students' performance, or that listening skill (not separately measured in this study) played a significant role. Students' self-perception of accomplishment was high, yet unsupported by their measured performance. Future studies may need to incorporate these factors into the research design.

Table 1. Quiz Score

Coefficients <sup>a</sup> Model		Unstandardize d Coefficients	Std. Error	Std. Coefficient s Beta	t	Sig.
		B				
1	(Constant)	4.488	1.179		3.807	0.001
	Usage of worksheet	0.072	0.11	0.137	0.66	0.515
	Background knowledge	-0.024	0.108	-0.045	-0.218	0.829
	Best Pre-enroll TOEFL	-0.008	0.003	-0.482	-2.821	0.009

Note. a Dependent Variable: Quiz Score

Table 2. Paragraph Writing Score

Coefficients <sup>a</sup> Model		Unstandardize d Coefficients	Std. Error	Std. Coefficient s Beta	t	Sig.
		B				
1	(Constant)	40.008	17.299		2.313	0.029
	Usage of worksheet	0.224	1.609	0.032	0.139	0.89
	Background knowledge	0.049	1.589	0.007	0.031	0.976
	Best Pre-enroll TOEFL	-0.059	0.04	-0.283	-1.482	0.15

Note. a Dependent Variable: Paragraph Score

Table 3 Final Exam Score

	Final exam	Paragraph	Quiz score	Worksheet view	Prior knowledge	Worksheet use	TOEFL
Final exam	1	-0.31	0.024	0.117	-0.015	-0.113	-0.03
Paragraph	-0.31	1	0.588	-0.091	0.031	0.082	0.288
Quiz score	0.024	0.588	1	-0.044	0.043	0.189	-0.503
Worksheet view	0.117	-0.091	-0.044	1	0.267	0.529**	0.023
Prior knowledge	-0.015	0.031	0.043	0.267	1	0.564**	-0.021
Worksheet use	-0.113	0.082	0.189	0.529**	0.564**	1	-0.161
TOEFL	-0.03	-0.288	-0.503	0.023	-0.021	-0.161	1

Note. \*\* $p < .05$ .

In terms of achieving the four goals of the study, the following conclusions were reached:

Quiz scores average slightly improved in Quarter 2, over Quarter 1. However, the improvement was not correlated with the use of worksheet (as claimed in the survey). Paragraph writing scores did improve in Quarter 2. We did achieve this goal, but the credit,

once again, could not be attributed to the use of the worksheet. As there was only one final exam, we could not prove that worksheet users performed better. Therefore, the result is inconclusive. In terms of sustaining student motivation, correlation among motivation factors, background knowledge and worksheet use indicate that motivation was sustained.

One possible explanation of the absence of correlation between the worksheet use (claimed) and the improvement in quiz and paragraph writing performance is that students with low usage of worksheets may have inflated their survey answers to the question about the use of worksheets in fear of negative repercussions on their grade, despite the stated assurance that the survey answers would have no consequence on their grades. Another possibility is that students needed more time to get used to using the worksheet. Introducing the worksheet at the beginning of the course may yield a different result. Furthermore, not including the students who dropped out in our analysis had an underestimating bias on the effect of the worksheet.

### *Teaching solo*

After aggregating and analyzing the data collected from the Bridge course in 2012, the instructors involved decided that team teaching had been a successful intervention. Based on these results and student comments from a survey conducted at the end of the course, the content instructor agreed to teach the course again, in fall 2014, without the EFL instructors present on site.

In order to prepare, a research assistant was hired and instructed by the EFL teachers on how to create reading support material for the first half of the course (chapters 1 through 6) that was missing during the previous running of the Bridge course.

The research assistant also helped review the weekly quizzes, so as to have them reflect the main points of each chapter as underlined in the reading worksheet. EFL instructors provided feedback on the language used in these quizzes by checking whether the vocabulary and grammar were level appropriate and whether the vocabulary and grammar difficulty did not interfere with the objective of the quizzes.

Also, to support vocabulary learning, EFL instructors set up weekly lists with difficult and important vocabulary items for each chapter, on an online vocabulary study platform called Quizlet. A link to the Quizlet tool was made available to all students on the Blackboard Learning System.

The content instructor also arranged tutoring sessions with international students who were instructed to provide help related to both the content of the course, and English language. Attendance at tutorial sessions was limited to only a few students each time, however, and the usage of the Quizlet tool was also sporadic. Due to rescheduling of the final session, when the exit survey was planned, the collection rate of the survey forms was low. Therefore, comparison of the results between the Fall 2012 and the Fall 2014 Bridge courses was abandoned.

### *The challenges of teaching EMI classes*

This project helped highlight a few problems with the team teaching approach in EMI classes. The burden on the language teachers is heavy, and the university's program managers do not endorse this approach.

Teaching an EMI class is very demanding mentally and physically. Nevertheless, the team

teaching approach is usually misunderstood to be easier than solo teaching because it appears as if teachers can simply divide their work. Also, language teachers struggle with the gap between their role as an assistant and the huge amount of work and responsibility. Therefore, only a few language teachers are willing to work with content teachers, although they know this can be a solution for successful EMI classes. It is not practical to broadly apply the team teaching approach unless universities accurately understand the roles and work of instructors in EMI courses and support their work.

On the other hand, having the content instructor teach solo, with EFL instructors' support off-site might also raise several different concerns. This is especially true if planning, implementation, and monitoring, as well as evaluation, are all conducted without any direct interaction with the actual course and the students taking it. In the present study, as a second step in a project where the EFL instructors were originally on-site when developing the framework for language support, this approach proved to some extent successful. Resources, in the form of research assistants, teaching assistants, tutors, online learning management systems and other online learning tools are essential, however, in this case. Although the content instructor may be willing to incorporate a language support system in the EMI course, asking the content instructor alone to develop this language support system would be too big a burden on one individual teacher.

Although the students who actively took advantage of the language support had positive perceptions about it, data did not support the expected improvements in their actual quiz, paragraph writing, and final exam scores. The language support might have raised student motivation, but not performance in a measurable way.

## Conclusion

This chapter described an EMI teaching practice at an international university in Japan and tried to assess the possibility of the team teaching approach to close the learning gap in EMI classes. On one hand, our experiment clearly showed that the amount of work for the instructors to prepare and conduct an EMI class was heavy. On the other hand, students who did use the language support did not show measurable improvement in their course performance. Understanding the lecture contents and the textbook was extremely challenging for the students even with the language support and many saw the worksheets simply as an additional burden. The result was a frustrating one from the perspectives of both the students who sought improvement of their performance with the help of language support and the instructors who undertook the heavy extra work to assist such willing students.

Further outcome assessment is necessary to analyze the effectiveness of the team teaching approach in EMI courses at colleges in Japan against the reported praise of the approach elsewhere. At the same time, instructors have to communicate correctly the pros and cons of the team teaching approach with their institutions. Success in the EMI courses will take globalization of Japanese higher education to a higher level.

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## Teacher educators' collective agency and identity re-negotiation amid tensioned work practices

*Päivi Hökkä, Katja Vähäsantanen & Salme Mahlakaarto*

The University of Jyväskylä

In recent years, there has been global upsurge of interest in teacher education and teacher educators' work. Teacher educators are seen as crucial in enhancing teacher quality, developing schooling, supporting economic development, and safeguarding a socially coherent society (Liston, Borko, & Whitcomb, 2008; Murray & Harrison, 2008). Simultaneously, teacher education organizations have faced many societal, economical, and organizational challenges, including a movement towards neo-liberal economic policies and New Public Management. This has caused increased accountability and new systems of monitoring, reporting, and evaluation (Meyer & Rowan, 2006), as well as pressures to cut costs and increase productivity. These changes in teacher education have influenced teacher educators' work, identities, and careers in many ways (Davey, 2013; Hökkä & Eteläpelto, 2014). Concurrently, teacher educators' work has become increasingly monitored and controlled (Goodson & Lindblad, 2010). In university-based teacher education environments, including Finnish programs, this situation has created pressures for teacher educators to become productive as researchers. The turbulent nature of current academic work has further challenged educators' traditional professional identities, requiring teacher educators to practice active agency and renegotiate their identities to maintain enthusiasm and well-being at work.

During the last few years, the interest in teacher educators' professional identity and learning has expanded (Murray & Harrison, 2008). However, there is a lack of studies concerning teacher educators' *collective identity and agency* in their professional groups and

organizations. This is slightly surprising since the teacher educator profession is considered highly co-operational and collaboration based. The need for collective agency is also obvious because of recent global and societal pressures to develop work practices and renegotiate professional identities. Thus, this chapter presents a study on teacher educators' collective agency and identity amid tensioned work practices. The study illustrates how teacher educators' professional collective agency and identity can be strengthened and the main prerequisites for this process in the course of an identity coaching programme. This programme sought to support teacher educators' professional identity negotiation by promoting their professional agency.

## Theoretical background

In theoretical discussion, professional agency refers to professionals who act intentionally, exercise control, and have an effect on their work and work environment (Eteläpelto, Vähäsantanen, Hökkä & Paloniemi, 2013; Harteis & Goller, 2014). Recently, teachers' agency at community settings has been studied by addressing how individual teachers can affect and take initiatives within complex social settings (Moate & Ruohotie-Lyhty, 2014). However, the concept of *collective agency* has not been considered. Collective agency refers to the idea of a group of people sharing and pursuing a common interest to improve their own lives and to affect larger contexts (Ibrahim, 2006); examples involve participation within the work community or within the entire work organization (Hökkä & Eteläpelto, 2014). In social cognitive theory, collective agency is seen as a process where individual actors' knowledge, skills, and resources are combined to achieve shared goals and to shape their future. This kind of thinking emphasizes that individuals share a common belief about their collective capability to achieve goals (Bandura, 2006). In a sense, individuals are seen as actors who are goal-oriented and make intentional choices, and whose self-efficacy or collective efficacy acts as a determinant in human behaviour (Bandura, 2006; Harteis & Goller, 2014). This theoretical approach views collective agency as individually shared capabilities to make intentional choices and actions based on those choices.

There are also approaches that emphasize the behavioural process of professional agency, rather than seeing it as a collection of individual capabilities. Our starting point in understanding collective agency is based on a subject-centred sociocultural approach, in which both the sociocultural conditions and professional subjects are addressed (Eteläpelto et al., 2013). This implies that professional agency is manifested in and resourced by a relational interaction between social conditions (including certain cultural and material resources and constraints) and individual subjects with their professional identities and competencies. In this approach, the relationship between professional identity, agency, and work practices is further emphasized. Agency is addressed in relation to professional identity by highlighting the need for continuous identity renegotiation amid changing work conditions (Vähäsantanen, 2015). This approach also emphasizes the importance of agency for the development and transformation of work practices and cultures.

In this chapter, collective agency is defined as the efforts of professional communities to exert influence, make choices, and take stances in ways that affect their work and their professional identities (Figure 1). Therefore, collective agency can be manifested in terms of a

group of employees' collective initiatives to develop new work practices, or their new shared understanding of themselves as a professional group amid external challenges. We also understand that collective agency is closely intertwined with employees' collective professional identity, including elements of shared commitments, identifications, and group memberships. Professional collective identity is further understood in terms of functional professional relationships and group affinities (Davey, 2013).



*Figure 1.* An understanding of professional collective agency (applied from Eteläpelto et al., 2013)

## Research questions

This study aims to explore teacher educators' collective identity and agency amid tensioned teacher education practices via the following research questions:

1. How do teacher educators perceive collective identity and agency in i) the arts and craft group, and ii) their subject matter group before and after the identity coaching programme?
2. What are the most critical prerequisites in building collective identity and agency?

## Identity coaching programme

The programme aimed to foster the professional identity negotiations of participants by strengthening their agency, allowing them to face current learning challenges at work. Overall, the programme sought to i) support participants' professional identity work, ii) help participants clarify their work-roles amid changes, iii) strengthen participants' professional agency in work communities, and iv) increase well-being and empowerment at work (Kalliola & Mahlakaarto, 2011). To achieve these goals, the programme created a platform to address four main thematic components of identity (Figure 2). While the goals and themes were assigned, the coaching processes were specified and framed based on the needs of participants.

The programme included six workshops (each lasting three hours) over the course of six months. Its implementation occurred as small-groups led by an experienced coach. Coaching

practices sought to provide collective space and resources to help participants consider their work-related issues and identities and arrive at solutions, rather than teaching the participants. Therefore, the purpose was to create a stimulating and supportive social arena for participation, including the processes of reflecting upon and considering the components presented above so participants could become aware of, find new solutions, make decisions, empower themselves, and have an influence in relation to these issues (Kalliola & Mahlakaarto, 2011). The group-based setting included various collaborative and narrative methods with applications of sociometry, sociodrama, paired and group discussions, drawing, and writing. Furthermore, the programme included various individual tasks (e.g. Professional Body and Archetype Test) between the workshops.

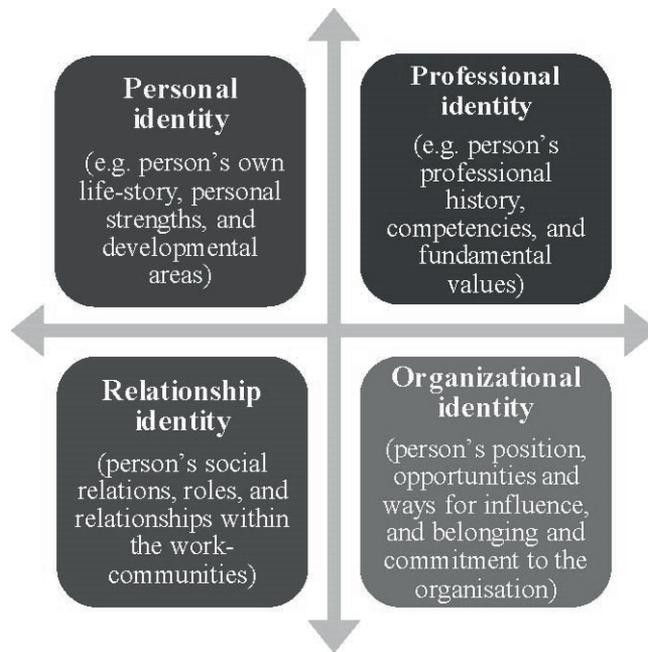


Figure 2. The main components of the programme

## Method

This study focused on a group of ten teacher educators from the field of arts and craft education that participated in the programme in 2013. In the Finnish teacher education system, arts and craft education includes music, physical education, handicrafts education (including textile work and technical work) (Rasinen & Rissanen, 2010), and art education. The participants (seven female, three male) worked as lecturers or university teachers; each held master's degrees and few had licentiate or doctoral degrees. Their age varied between 33 and 61 years, and their work experience in the field varied from 7.5 years to 39 years.

During the *identity coaching programme*, a mixed, longitudinal research design was utilised to gather data. We compiled data from the pre- and post-interviews with participants, a total of

20 interviews. The thematic pre-interviews included the following themes: i) work history, ii) current work and identity, iii) work-related challenges, and iv) expectations and doubts about the programme. The thematic post-interviews included the following themes: i) the current work situation of participants, ii) perceived learning during the programme, including outcomes and usefulness, iii) evaluation of the contents and methods of the programme, iv) perceptions of one's own participation during the programme, v) experiences of the group and the coach, and vi) suggestions for improving the programme. The interviews were guided, but the interviewees were encouraged to describe their perceptions, experiences, thoughts, and feelings openly without strict guidelines.

The transcribed research material included 249 pages, including 121 pages of pre-interviews and 128 pages of post-interviews. The data was analysed via researcher-triangulation in accordance with qualitative content analysis (Saldaña, 2013). The analysis focused on teacher educators accounts concerning i) arts and craft education as a whole (including all subject matter groups), and ii) their own subject matter group (e.g. art education). During the analysis, we looked for common elements across the interviews, aiming to produce general descriptions from the data. Therefore, the descriptions that were produced should not be understood as objective descriptions of reality. Furthermore, we compared the participants' responses related to the first research question (and their potential differences and similarities) from pre- and post-interviews.

## Perceptions of collective identity and agency at the beginning of the programme

### *Perceptions of the arts and craft group*

At the beginning of the programme, the teacher educators did not talk about arts and craft education with a strong collective identity (shared mission and identifications, affinities, and functional professional relationships) and collective agency (shared activities and influence). Taken as a whole, the group seemed to be more fragmented (including separate educators and subject matter groups) than coherent. Although some individual educators knew each other through shared teaching practices, the educators reported that they did not know each other well; they saw each other as individuals and particularly as a group very rarely and they did not truly collaborate as a group. As one teacher educator stated:

*We are quite separated units, our subject matter groups don't share anything... We can't talk about 'us', each group has own matters.*

Many educators pointed out that the main reason for the lack of shared activities and affinity was the physical separation between arts and craft educators; subject matter groups were located in different buildings. Some educators also reflected that the situation was better previously in terms of seeing each other regularly, making shared proposals to the leaders of the department, and dealing with assignments from the leaders. The group also viewed themselves as disconnected from the entire teacher education department due to the physical separation, which created further social and functional separation. Some teacher educators further discussed the position of their group at the department by emphasising the poor appreciation and marginalization of arts and craft.

*Perceptions of the subject matter groups*

Although the teacher educators described the group of arts and craft rather similarly, their perceptions of collective identity and agency in subject matter groups were quite different, varying from *strong* to *weak*. It should be emphasised that there were also different perceptions of the extent and strength of collective agency and identity. Even members of the same subject matter group described their group differently regarding collective agency and identity. Therefore, the following illustrations of weak and strong collective identity and agency do not point to any specific teacher educator or subject matter group.

Perceptions of strong collective identity and agency in subject matter groups were characterised by togetherness, functional and confidential relationships, and intense collaboration in the areas of teaching and researching. The teacher educators described a team spirit, equality, and shared humour, as well as a strong identification and sense of belonging associated with their subject matter and other people in the group. As one teacher educator stated:

*We have a good team spirit...we plan and work much together and we discuss and share work-related affairs and personal matters. That is, I could say that we have that kind of confidential atmosphere.*

The educators further expressed that the organisational settings created autonomous frames for individual and collective activities and developmental attempts. Strong collective identity and agency supported educators' professional commitment, sense of meaningfulness, and enthusiasm in work and their work community.

Conversely, weak collective identity and agency in subject matter groups were characterised by a perceived lack of affinity and shared activities. The social relationships were tensional and inflamed, and without trust, openness, and togetherness. As one educator said "*individuals are on their toes and avoid each other*". Tensional relationships emerged partly from conflicted work situations, but continuously decreasing resources (e.g. staff reductions, reduced resources for teaching) have created notable frames for the absence of collective identity and agency. In this situation, the educators must fight for their own existence and adjust teaching practices to the prevailing conditions. This reflected negatively on professional relationships and caused competition and friction, further preventing strong collective agency in terms of developing shared teaching practices, and "*acting together as a spokesperson on the behalf of the situation of subject matter in the department*" as one educator put it.

## Perceptions of collective identity and agency after the programme

*Perceptions of the arts and craft group*

Most of the participants stated that their understanding of their group as arts and craft teacher educators, and its position within the department had changed and crystallized during the programme. They emphasized a strong feeling of affinity as a group and realized that they were confronting similar fears, concerns, and issues in their present work practices and future expectations.

*I think our position in the department [has changed]. We noticed that we have similar questions and problems and we become kind of a united group then. Who we are at the department, not as individuals or educators, but as a group at the department*

Furthermore, they described that the understanding of their position as a group was more realistic and they more clearly grasped the structures, resources, and power relations reflecting their work in the teacher education department and the university as a whole. Some educators expressed that their perceptions about their department were more painless and relaxed, which was also reflected in their teaching and interactions with students. “*Things are not so serious, we laugh together...this has brought some kind of easiness and I think that our students also sense it*”.

Participants further explained that they understood the need to be proud of their unique position as representatives of arts and craft education within an academic context. They realized that it is useless to maintain negative thoughts, practice passive resistance, fight against windmills, complain, and “*moan in the corners*” as one educator put it. In addition, many of the participants indicated that they experienced a revolutionary realization about their marginalized position within the teacher education department. They realized that it is not only their right but also their obligation to defend the important position of arts and craft education as providing a unique combination of cognitive, emotional, experiential, social, and aesthetical aspects in learning. Some of them even viewed art education as anarchist in nature, by reflecting societal grievances and challenging the prevailing perceptions of society.

*For me an important aha-experience was the idea of arts and craft as being naturally in the marginal position...we have kind of wriggled against the windmills in this position. You have to accept that art is naturally in marginal and it is the duty of art to challenge social understandings and to be kind of a reflective mirror to society. It is kind of an anarchist mission – it must be in the marginal because it is art...I felt really empowered when understanding this. Now I know my colleagues and it is easier to start to find the ways to do things together.*

Participants indicated that their previous experience with low status and reduced appreciation within teacher education were crystallized by gaining an understanding of being in marginal but being fortunate in that position. This included understanding the meaninglessness of confronting and blaming others, especially the department leaders. Instead, the importance of working together as a group, negotiating with other teacher educators and leaders, and sharpening the justifications for their existence and the importance of arts and craft education were emphasized.

Many educators indicated that the most meaningful experiences of the whole programme were related to the last two workshops, in which they discussed their position, current situation, and future hopes as a group within the department very deeply, honestly, and openly. This was described even as an eye-opening experience and many hoped that this kind of honest and respectful discussion culture would be escalated to the whole department. Even though a powerful collective agency and identity was raised, many of the educators were a bit sceptical about whether there would be real changes and whether they would retain enthusiasm and strength to proceed without the support of the external coach.

### *Perceptions of subject matter groups*

The perceptions of strong collective identity and agency were characterised by expanded affinity within the subject matter groups. The most intense changes were among the educators who had previously expressed weak collective identity and agency. After the programme, they all indicated strengthened professional relationships within their subject-matter groups, including increased trust and equality. They stated that they felt understood and supported by their peers and also that their own understanding of others had improved. There was a space to be oneself and there was less need to maintain protective roles. The atmosphere of increased trust and respect was seen as a foundation for better and more intensive collaboration in future.

*I feel that inside our group the understanding has increased. I mean understanding towards each other. There is space to think. I feel that my colleagues understand me better now and I understand them. We give space to each other. It was important to stop to think about these issues. This was a very good thing... I feel that it is much easier to continue as a group. I feel confident.*

These changed and more functional relationships were also transferred to real-life working practices. Many of the educators indicated that the atmosphere inside the groups was now much permissive, positive, and supporting. One educator expressed, “*In our group things are now much easier. The kind of tension has gone. That is the main thing and that is a really big thing*”. However, a few educators stated that even though professional relationships had developed in more positive directions, the most painful and difficult issues could not be raised in discussions during the programme.

### The most critical prerequisites in building collective identity and agency

All the educators emphasized the significance of sharing their life-histories, stories, personal experiences, and even painful memories. Sharing their personal stories allowed participants to get to know each other more deeply and on a totally different level. This process strengthened throughout the programme and also created a foundation for the empowering discussions in the final two workshops.

*“I think the last workshops, where we discussed freely about the issues and problems about our work community, subject matter group and the whole department, were possible because of the developed trust during the previous workshops. In the previous workshops people told very personal and touching things about their lives; the feeling of trust and sharing these things created the ground for this kind of constructive discussions about our position as arts and craft educators and about the situation in our department”.*

The educators described the importance of being seen, heard, understood, and emotionally supported by the group and the coach. The feelings of safety, trust, equality, shared humour, and togetherness were highlighted due to knowing each other more deeply. By increasing mutual trust, there was no need to maintain any roles or facades, which released a lot of energy for collective efforts and collaboration.

## Discussion

The findings of this study revealed the group's transformative pathway. Initially, the group of arts and craft educators consisted of individual actors without collective agency, a shared mission, and identification with the group. Furthermore, most of them considered themselves marginalized in their organization and highly subjugated under managerial and economical structures. Through the shared activities, the educators became empowered in terms of their collective professional identity and agency. As a group, the educators renegotiated a collective professional identity in terms of functional professional relationships, group affinity, and identification with their group (Davey, 2013). Teacher educators further positioned themselves, their subject matter, and the arts and craft group as a whole in a new and constructive way. The feeling of being marginalized was transformed to a perception of marginality as a resource. This was closely connected to the realization of the important mission of arts and craft education amid recent global trends in academic contexts, which have emphasized unilateral rationality, accountability, efficiency, and increased productivity (cf. Meyer & Rowan, 2006; Goodson & Lindblad, 2010). It was viewed as a duty of arts and craft educators to defend a holistic understanding of being human and learning and developing as a human. Furthermore, educators' collective agency transformed from the marginalized, subjugated feeling of invisibility within teacher education to a shared understanding, trust, and will to influence and make choices that can affect their work, their subject matter, and their professional identities. They also indicated the importance of building bridges and making constructive choices and suggestions together as a group to affect their work, work community, and department.

This study highlights that the most crucial issue in building collective agency was developing trust and affinity between the educators. Furthermore, everyone needed the experience of being seen, heard, understood, and accepted as a group member. Similarly, in creating collective identity (i.e. a shared perception of "who we are as a group"), forming trust through shared narrative, humour, and a permissive atmosphere were crucial. Before constructing a shared professional identity, each educator needed to process their own professional identity. Therefore, this study suggests that when seeking to understand collective agency in professional contexts, it is important to address subjects' own individual narratives and learning pathways. To support collective identity and agency, it is pivotal to create shared learning platforms and processes (time, space, place) allowing educators to encounter, discuss, and focus on issues concerning continuous changes, work, and professional identities. This study shed some light to the issue of teacher educators' collective agency and identity renegotiation. Future studies should investigate how collective agency is negotiated and constructed in real-life situations. There is also a need for longitudinal studies addressing the collective identity and agency processes in teacher educators' work

## Methodology

Data were collected through focus group and semi-structured interviews with students who were in their final year of the programme. The participants were selected through purposive sampling. Students were required to complete the BPE degree in the year they were interviewed.

The participants reflected the diversity of the BPE students. There were nine female and 10 male participants. The participants ranged in age from 21 to 41. Ten of the participants identified as European, three as Samoan, two as Maori, one as Maori / European descent while one student identified as Samoan, Maori, and European.

Data were analysed through a five stage process of thematic analysis (Braun & Clarke, 2006). Initial coding of the interview transcriptions took place while I listened to the audio recordings. Inferential coding, that is, a focus on looking for patterns, followed. As data from interviews were collected over an 18 month period, these codes were revisited and changed new transcripts were read. A visual representation using theme maps (Braun & Clarke, 2006) was used to elucidate themes. These themes draw on the researcher's own theoretical understanding of critical pedagogy and focus on a 'search' for student understanding of critical theories, critical pedagogies and other examples of teaching that foreground social justice.

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## Heteronomy overlaps teachers' work: A case study in Para Federal University (UFPA)

*Rosimê da Conceicao Meguins<sup>1</sup> & Fatima Pereira<sup>2</sup>*

<sup>1</sup>Universidade Federal do Para

<sup>2</sup>Universidade do Porto

Making regions cultivable where up to now solely madness thrives. To move on with the sharp axe of reason, without looking either to the right or to the left, not to succumb to the horror that beckons from the depths of the jungle. All soil should ever have been upturned by reason, the brushwood of delirium and myth hoed. That is what must be accomplished here... (Benjamin, 2006, p. 499).

To direct the look and the reflection to ongoing phenomena may obscure its complete visualization thus making it difficult its understanding. When we are involved with them, the effort for such realization is even more accentuated. But this is the task we have imposed upon ourselves: to understand this moment presently faced by Brazilian higher education under the neoliberal logic that aligns education with the economy.

The rationale herein invoked in order to prepare this terrain has its roots in Kant's concept of *enlightenment*, "[...] as a process of intellectual emancipation that results, on the one hand, from the overcoming one's ignorance and laziness to think on one's own, and, on the other hand, from the criticism of preventions instilled into those intellectually minors by one's greatest (superiors, priests, people in government, etc.)" (Almeida, 1985, p. 7-8).

In such concept there resides the assumption of emancipation to be reached by the reflection and the criticism we assume to be present in education. Even though this latter be not limited to illustration, one cannot help but relate emancipation to the process of human formation. Such assumption has taken us to argue the ways by which the neoliberal logic applied to Brazilian higher education objectifies itself into actions carried through by the subjects working in it.

By principle, education and economics represent different fields, independent from each other, and ruled by specific laws. Nonetheless, what is observed nowadays is the transposal of the laws ruling the economic area into the field of education.

As the changes imposed by the “new model” create demands, as well as the need to accomplish the latter, an urgent survey is justified of the major transformations that occurred due to actions carried out by higher education faculty after the adoption of neoliberal policies that followed the establishment of graduate programs in Brazilian universities throughout the 1990’s.

## Literature review

The relation between neoliberalism and education has been exhaustively argued. Ambrosio (2013) discussed the emergence of the relation between neoliberalism and accountability in education which occurred in the American context as

[...] the rhetoric, discourse, and purpose of accountability shifted, from a primary concern with optimizing the relation between resource inputs and educational outputs, to a relentless drive to create policies and practices that aim to produce social conditions and forms of subjectivity consonant with the creation and efficient operation of market culture (p. 317).

From Foucault’s and Gramsci’s perspectives Ambrosio (2013) took the concept of *power* to evidence its importance in the role of culture in both individual and social transformation, which “is not merely negative or prohibitive, but is always, and more importantly, productive in the sense that it constitutes domains of knowledge, rituals of practice, and forms of subjectivity” (p. 317).

The importance of resistance against the emergence of neoliberalism and its relation to accountability in education in the United States, around 1970, is examined through “the implications of the philosophy, culture, and ethos of neoliberalism for educational thought and practice” (Ambrosio, 2013, p. 317).

Ball and Olmedo (2012) approach subjectivity in the terrain of resistance against neoliberalisation applied to education, as an attempt teachers make to think their everyday practices in a different way rather than quotidian neoliberalisation.

The implication of work in the constitution of subjectivity underlies the citations above. Bouyer (2013), nonetheless, faces specifically the relationship between mental health and work, according to Henri Bergson’s philosophy and his concepts of perception, cognition, duration, psychic life, time, and subjectivity. Bouyer concludes that there is some involvement by the subject which integrates psychic and cognitive life in an inseparable fashion.

Besides, the result of work is never a consequence of compliance to norms and rules externally imposed by the task (Guérin et al., 1997). What is observed, as an outcome of work, is a part of one’s psychic life materialized in the present time (Bergson, 1999), as already demonstrated in psychology of work (Bationo-Tillon et al., 2010) – even if the task be ruled by prescriptions, by the rigidity of management systems, and by the excessive control of the times and results by modern information systems (Bouyer, 2013, p. 106).

Such relationship may be affected due to changes established in the formulation of policies concerning higher education which invert purposes and guiding foundations, transforming reality.

Sauder and Espelan (2009) seized Foucault's conception of *discipline* in order to explain organizational answers to the practice of ranking educational institutions as well as to the adjustments made in a number of aspects, including in professional autonomy.

The influence of neoliberal logic upon the Brazilian educational context was investigated by Silva Júnior and Sguissardi (2001) focusing on the effects observed in teachers' work carried out in graduate programs. These authors analyzed as well the impacts of external evaluations, of both intensification and precarization of teachers' work (Mancebo, Silva Júnior, & Oliveira, 2008), and of the productivism imposed upon this work in graduate programs within federal universities in the southeast of Brazil.

Within the framework of transformations undertaken, as well as of resulting investigations thereby generated, analysis may be found such as Mancebo's (2002), concerning the conformation of subjectivity linked to various contexts: a) of modernity; b) of globalization, and the influence of mass media; and c) of the effects of the new work processes on the specific field of teaching and University production (Mancebo, 2007).

The uncontested restructuring observed in the existing society turns our attention to aspects already identified in previous moments of transformation. Freud (2000) as well as Adorno and Horkheimer (1985) have been considered for their reflections concerning the civilizing process and the production of culture, and also regarding the role knowledge plays in the possibility of rescuing man from his state of *minority*, in the sense conceived by Kant.

In the critique of culture those authors make, the prominence assigned to power and domination was not left yet to be considered as villains who deviate the subject from his quest for autonomy. Such deviation may be costly should one consider the malaise indiscriminately promoted, indicating the existence of pathologies in the system which will reach the particular individual. Amaral (1997) resumes those authors so as to carry out a theoretical study that reconstitutes the mode of subjectivity that marks the times of modernity: the narcissistic type.

## Methodological approach

Our objective concerned and addressed the subjective apprehension of the determinations created from the new structuring imposed upon Brazilian higher education. It is the teachers' subjectivity we wish to unveil through their quotidian actions, thus revealing the ways the restructuring of universities is objectified within regional and national scenery.

The survey allowed to access teachers' subjectivity with the purpose of identifying:

1. The (re)configurations undertaken in the activities they carry out;
2. The (re)organization of the time and space assigned to them;
3. The alterations in their actions involving their professional and private lives;
4. The convergence / non convergence of interests both personal and institutional;
5. The satisfaction / dissatisfaction obtained from the results of their work.

For such purposes, nondirective interviews were conducted with ten faculty members; the material collected from their lines was used as a leitmotif for the digressions woven on the grounds of *Content Analysis* approaches (Bardin, 2013), in confrontation with the theoretical elaborations that guide our analysis. We have resorted to both classic and contemporary

authors with the perspective of finding visionary aspects of reality in moments previous to the present time, in order to corroborate – or not – their standpoints.

We took teachers' subjectivity as the object of this study from a qualitative methodological approach in order to infer the modifications undertaken (or not) in their performance, due to their activities in graduate programs, when they came to be named teachers-researchers. Therefore, this is a specifically ranged study that takes into consideration the universe investigated, both in its scope, breadth, and in representativeness.

After the selection of the participating teachers, the interviews were conducted, thoroughly filmed, each one lasting between 50 and 60 minutes. Personages were identified by letter T, standing for *Teacher*, followed by a number (1 through 10) randomly assigned in order to safeguard anonymity about their identities.

The guiding axle that has oriented the development of interviews with faculty involved objective and subjective aspects related to the general theme – work and teachers' subjectivity – aiming at the free expression of their attitudes (actions, perceptions, motivations, evaluations, fondnesses and affections) involving other people, objects, and themselves.

The *corpus* of data was divided into sequences, taking into consideration both the aspects that guided the interviews and the presence and/or absence of those factors that characterized objectivity and subjectivity in the ongoing period as well as in the previous one. Transcriptions being concluded, all the material was submitted to enunciative analysis (Bardin, 2013) in order to be organized into categories:

- Time
- Public life
- Private life
- Personal interests
- Institutional interests
- Pleasure
- Displeasure

## Results

The most immediate finding was that rhythm and amount of work were intensified with the arrival of graduate programs. These programs, being regulated by agencies external to the university, are credentialed and submitted to evaluations that take into account both infrastructural conditions and the program faculty's performance. Established requirements need to be fulfilled because they guide teachers' acting at this new juncture named production.

Based upon both this condition and the resulting production, programs and faculty are classified and organized into a hierarchical scale and whose position becomes an indicator of quality. Such a criterion serves as a measure for achieving all the requirements indispensable for the maintenance of the program and of the faculty permanence in it, including those essential for a teacher to carry out his work, such as scholarships for study and research:

[...] for you to be [teaching] in the graduate level, you face demands. Not you, I mean; the demands come from the institution, from Capes<sup>12</sup>, for you to enter, to be accredited in the program. Then, and then you have to keep struggling to stay in, you can't let your production in the program to lessen... [...] And then you have to produce, you have to orient students, you need to have students in scientific initiation, all of this is required, and I think it is positive; however, the circumstances, the working conditions are very perverse. (T3).

A paradoxical situation is set up. It is required from the faculty the fulfillment of activities-means they have always carried out, which is evaluated as positive, although in adverse conditions, better saying, in perverse conditions. In fact, that that was their purpose – human formation – loses ground to production.

*That's because you work too much to get through. Sometimes, we think: gosh, three more years, because the demand is quite a lot for you to stay working in the doctoral level. When you are hired, you don't necessarily join the faculty in the Master's or Doctoral levels. However, to join the faculty in the doctorate, that's when you've got to have six products, as Capes calls them; and then, you've got to have in the triennial at least six products. And then, at this very moment, another discussion comes up, that is happening right now, that is this story of self intensification. Those who defend it say that Capes requires only six, and that I produce eight or nine; that, therefore, it is my problem because Capes is requiring only six. But there is already something else, which is the fact that you're always competing, because for you to have your project financed, you compete by applying to an edict, since there is not enough money for everybody. So, even if the merit of your project is approved, your Curriculum Lattes<sup>13</sup> is now going to be assessed, for classification purposes, given that there are 200 applications, and only 50 can be awarded. And, of course, you'll have to have your Lattes [updated], because you can't have six [in record], because everybody's got six, right? Then, if you want your project to be financed, because otherwise you won't be able to carry it out, you will have to make that sacrifice, of presenting more than six, so that you can really obtain something. For example, when you have either your productivity allowance, or financial aid to present a paper in a conference overseas, or an application for a post-doctorate period overseas, then all these things you are applying to are going to be evaluated not only for their merit, but also in your Lattes – it talks values, exactly. So, this issue there, of what is it that differentiates pleasure from pain, I think we end up in a process of mitigating this suffering, because it is constant. If*

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<sup>12</sup> CAPES (the *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior*) is the Brazilian federal agency that assists the Ministry of Education in the formulation of national policies relative to the expansion and consolidation of postgraduate studies as well as in its support and evaluation.

<sup>13</sup> The *Curriculum Lattes* is the standard model created and established by CAPES for the information of *curriculum vitae* data by faculty, students and other personnel in higher education institutions in Brazil.

*you stay there the whole time, you kind of quit, you enter a process, as so many colleagues do – is it not? – of depression, of sickening, which is very serious, it is not a minor thing. (T3).*

The dangers of indiscriminate and permanent use of competition, as a principle contrary to a human education, have been pointed out for a long time (Adorno, 1995, p. 161), for being in opposition to what such education should be promoting: to realize what we have been learning, to reflect about the debilities of what we do, about the demands imposed upon ourselves or the objectifying of what we had imagined, and to work towards the overcoming of infantile representations and childishnesses of different kinds. (*Idem, ibidem*).

The only explanation for the resort to competition is the need to educate as preparation for a competitive society. Such logic flows against debarbarization, and stays opposed to cooperation and solidarity that seeks emancipation. Such situation alters very deeply the relationships among faculty.

*Either you do it or you ask to get out! Because nobody is forced into it. Every day I say that to myself: ‘But why am I here?’ Because nobody is forced to be. ‘Because I like it!’ You’ve got to have some pleasure that satisfies you subjectively. You’ve got to. Otherwise no one would stay. But it is something horrible! And we are crueler than Capes itself. Because we are cruel to ourselves and to our colleagues. Because we get angry whenever we see someone who has no production and who couldn’t care less. Gosh, but we are just there. ‘I’m killing myself!’ So, this is something contradictory. (T5).*

This affects also one’s relationship with oneself. Adorno (1995, p. 150) considers this attitude as a phenomenon of resentment, a nietzschian expression, that leads people to hate “what is differentiated, what is not molded” and make them “choose against themselves that which is not properly their will”. A situation that results from the repression we are submitted to, of the capability to make experiments, including intellectual ones.

Therefore, the particular got dissolved into the general. The only individuation still permitted is that of the indifferentiation in relation to the whole. For that matter, it is fundamental to empty private life, which is nowadays totally “fulfilled” by work. “There is no more room for human emancipation when the world seems determined to guide it heteronomously” (Becker cited in Adorno, 1995, p. 170).

*Those impositions are letting us in a very difficult position, you know. I don’t know where we are heading to! There is quite a lot – isn’t there? – behind all this, because you have ranking on everything... Then, even if I have professional exchange with a colleague or a group of colleagues, for example, who work in the Northeast and discuss the same themes I discuss, and so on, whom I can interact with, this group, if it runs a journal and it is qualified below the score established by the institution, then I will not publish in that journal. That is, the public policy concerning financing and fomenting graduate programs is saying: ‘Professor, do not publish in that journal’. It’s indicating that I make a move, from that group to another one which maybe I have no theoretical affinity with – do you understand? So, that’s how it is! These are situations in which quotidian keeps showing you the inhumanity of the process. [...] Then, there is a lack of ethics, and you keep resisting to it. A time comes when you ask yourself: up to when am I going to resist, or will it happen that I’m going to quit this ethics – do you understand? It’s difficult! [...] These*

*demands, from a bureaucratic standpoint, should let people somewhat freer so that they can write what is really more important. The work, it is too predetermined, too formatted in our absence; reports come to us already structured; even if you want to feel free to write, no, it has to be within what is established. It is so hard to say this. It's all so unpredictable. Why do I go on believing in our ability to resist? We are accommodated, taking very passively the model of post-graduation we have. (T7).*

Giddens (1991, p. 27-29) discusses the intimate connections between time and space in pre-modernity, and the transformations promoted by modernity which resulted in the invention of the clock, as an expression of “empty” time. The author alerts to the fact that space acquires ghostly features because it is structured not by what is present in it, but by what it conceals: “Distanced relationships that determine its nature”.

*That's how we live day-to-day: in a hurry, all the time. You no longer allow yourself to look at your colleague, and see how you can help. We even have the mechanisms, they are just in there; but you don't have the time for that. Because you always have one thousand things to do – do you understand? And if we are not attentive to these things, time goes by and swallows you. And then, there starts the generation of conflicts among us; you kind of become my enemy, when in truth you are not my enemy. You are as much a victim as I am! (T 10).*

Isolated from one another, in constant competition, and under continuous pressure, it is imperative that teachers find some satisfaction to move on.

*Why, what is production for Capes? It is publishing! Although one has produced a lot, in terms of work, if one does not publish, one is unproductive. And here, I say: what a situation! You work, a lot, and at the end you are considered unproductive – isn't so? But my relationship with research, orientation, formation, is the other level of an institution that permits the post-graduation programs. It starts to generate a conflict. A conflict because it is an interesting job, it is pleasant; but hour after hour you see yourself like this, submitted to external criteria; and you, at every moment, conduct your actions in order to meet those criteria which, in general, do not concur to what you long for graduate programs, in a region like ours – do you understand? This is painful, because my assessment today is: we do not have autonomy in relation to Capes. Our actions, they are carried out from what is demanded from us. And I deem that very degrading! (T10).*

From a perspective rather opposite to the current one, Hegarty (2010) evokes the notion of time defended by Benjamin (1968), in his *Thesis on the Philosophy of History*, for his understanding that “history is the subject of a structure whose site is not homogeneous, empty time, but time filled by the presence of the now [Jetztzeit]” (p. 252–3). This requires a bringing into the present of a past moment that is already to be seen as present in the present, so that it combines with the ‘present’ moment, retrospectively dialecticized as history (Hegarty, 2010, pp. 109-110).

## Final considerations

If the emancipatory project has not become effective, then, there remains current that education reflect about its role in human formation, as it faces a world that more and more decisively rules us heteronomously. A contradiction is thereby presented that cannot be overcome by the illusion of satisfaction present in the fetish of distinction and notoriety promoted by productivism.

Autonomy, as a promise to be fulfilled by ways of the emancipation process, cannot be replaced in this manner without compromising what it aimed at: to emancipate. What is in question is the ideological role played by education.

It does not seem ingenuousness the creation of regulatory external agencies in order to control graduate programs in Brazil. They constitute the ideological sphere of neoliberalism for the fulfillment of a number of internal requirements relative to systematization coherent with that type of rationality.

Professors have an important ideological role to play, as direct producers of that sphere as well as creators of cultural ideological products. Löwy (1998, p.26) considers that, “As a social category more distant from the process of material production, intellectuals enjoy a certain autonomy in relation to classes; autonomy that manifests itself by certain instability, by diverse fluctuations and movements.” Nonetheless, such fluctuation is temporary, and they may be “attracted by one of the grand social classes in struggle... Or by the class that is closer to them.”

*Thus, there resides my difficulty and the difficulty of this generation to accept and to enter this system so easily, without resistance. We complain a lot, but the confrontation, we can't do it as yet. Because the degree of competitiveness installed has been so great that collective resistance is near to impossible. It disappears. It is too little. (T8).*

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## Becoming a relational teacher educator: A case study

*Helena Montenegro<sup>1</sup> & Rodrigo Fuentealba<sup>2</sup>*

<sup>1</sup>Pontificia Universidad Católica

<sup>2</sup>Universidad de San Sebastián

Teacher educators are important role models for the next generation of teachers. Through their teaching practices, they can improve the quality of teacher preparation, play a critical role in educational reform, and contribute to educational equity as well as the overall success of students (Darling-Hammond, 2006). Hence, the importance of the work of teacher educators cannot be underestimated. As Davey (2013) argued, the quality of teacher education is affected by who teacher educators are and how they teach. Despite the fact that there is a growing body of research literature about the pedagogy of teacher education and the knowledge-base of teacher educators (Davey, 2013; Korthagen, Loughran, & Lunenberg, 2005; Loughran, 2006; Swennen & Van der Klink, 2009), this has not been the case in Chile. In that context, research on teacher education has been sporadic and primarily focused on pre-service teachers and teacher education programs from both academic and policy perspectives (Cisternas, 2011; Montenegro, 2015; Montenegro & Fuentealba, 2012). For example, the National Commission Report of Initial Teacher Preparation revealed critical areas in teacher education programs in need of addressing (Mineduc, 2005). In particular, this report claimed there was a lack of formalized induction as well as professional development among Chilean teacher educators. In fact, a recent study (Montenegro, 2015) confirmed this lack of support from members of teacher education programs in their early years as teacher educators.

To explore this in more detail, the purpose of the current study was to highlight how beginning teacher educators come to be teacher educators through collaboration with other members of the teaching profession. Based on the relational teacher education approach (Kitchen, 2005), our narrative inquiry sought to enrich our understanding of what it means to be a teacher educator and the relational nature of changes relating to our respective knowledge

and teaching practices. It is our hope that these findings contribute to useful suggestions for the field of teacher education in general and in particular to provide insights into their own professional learning for those beginning their career as teacher educators.

### Theoretical frameworks

The professional path of teacher educators has recently gained a great deal of scholarly attention in the research literature. According to several studies, the career transition from classroom teacher to teacher educator is a complex process often associated with inner conflict and tension (Dinkelman, Margolis, & Sikkenga, 2006; Murray & Male, 2005). Similarly, Korthagen, Loughran and Lunenberg (2005) noted that one becomes a teacher educator without formal preparation, and often with little or no support from more experienced teacher educators. This view is supported by other recent studies (Field, 2012; Griffiths, Thompson, & Hryniewicz, 2014; Williams, Ritter, & Bullock, 2012). Moreover, this lack of support does not only take place in the beginning of a teacher educator's career but also throughout his or her professional life as a teacher educator (Van Velzen, Van der Klink, Swennen, & Yaffe, 2010).

Berry (2007) demonstrated that there are two different pathways into the profession of teacher educators. These are: (a) from academia in which researchers or PhD students become teacher educators; (b) from classroom teaching in which successful and experienced teachers become teacher educators. In both cases, beginning teacher educators have different backgrounds (epistemic versus practical knowledge) and experiences (research or schooling practices) that affect teacher preparation in many ways. In any case, one might expect that the knowledge for teaching could be easily transferred to student teachers, but research suggests that this is not necessarily so. Bullock (2009) explained that most teacher educators have difficulties in the translation of their school teaching experiences into a pedagogy of teacher education. Similarly, Loughran (2006) argued that teacher educators have difficulties in making explicit the pedagogical reasoning that underlies the teaching and learning processes. On the other hand, Wenger (1998, cited in Williams, et al., 2012) states that learning is essentially a social activity situated in the communities of practice to which the person belongs and in which they work. In other words, professional development is situated, and in fact occurs in different social and cultural contexts. As a result, the processes of learning take place in many different personal and professional contexts of practice, for example, classroom experiences, school communities, teacher education programs, and professional development courses. It could be argued that teacher educators learn not only through the teacher education program (as a new workplace), but also from the people within teacher education programs (as significant others).

Given the fact that professional development is a process socially constructed over time, and that it takes place in different workplace contexts, it is important to study it within these multiple contexts, recognizing the different communities of practice in which it occurs. This issue becomes even more imperative when we consider the fact that teacher educators have developed part of their knowledge and teaching practices as a teacher educator within teacher education programs. In fact, although their previous professional experiences may have contributed to developing their teaching knowledge as teachers and teacher educators, one might reasonably argue that teacher education programs are particular communities of practice in which teacher

educators develop and teach about learning and teaching. The work of Harrison and McKeon (2008) expound further on this point by stating that important facilitators for supporting the career transitions for teacher educators are both formal and informal, and indeed provide opportunities for in-depth, reflective learning conversations with more experienced colleagues. Therefore, it is imperative that teacher educators not only inquire into their own practice as beginning teacher educators, but to look at their teaching practice throughout their professional path as a teacher educator. Along this line, the relational teacher education's framework introduced by Kitchen (2005) offers an interesting approach in which teacher educators can understand their own practical knowledge and situate their work in their professional landscapes. Thus, relational teacher education is a reciprocal approach to reinforce the idea of a collaborative relationship with others in which each participant plays both a teacher and a learner role. It is from this perspective that we offer our insights into the process of becoming a teacher educator.

## Method

In this study we adopted a methodological approach that has been strongly influenced by narrative inquiry. According to Kitchen (2009), narrative inquiry is a methodology that can improve our understanding of ourselves as teacher educators and of our professional practices. It is a multi-dimensional exploration of experience comprising three elements: temporality, interaction, and location. We also concur with Clandinin and Connelly (2004) who argued that narrative self-study is a powerful way to understand participant knowledge. This line of research is aimed at investigating the teacher educators' teaching practices in order to achieve a deepened understanding of those practices, as well as the context in which those practices emerge (Vanassche & Kelchtermans, 2015). From this perspective, Kitchen argues that narrative inquiry can improve the self-study of teacher educator practices in two ways:

As a methodology, narrative inquiry offers a range of methods for telling and retelling stories of our experiences, the experiences of others, and the dynamic in our teacher education classrooms. As a method for studying phenomena, narrative inquiry offers critical frames for making sense of these experiences, the personal practical knowledge underlying them and their social context (Kitchen, 2009, p. 38).

The analytical framework applied in our study was the concept of 'relational teacher education' introduced by Kitchen (2005) which focuses on the ways in which the work of teacher educators is understood in relation to others. By looking back on relational experiences we are able to move forward with a deeper understanding of being a teacher educator. In order to do so, our data included autobiographical narratives that recreated an experienced teacher educator's professional career (Rodrigo) and that of his novice PhD student (Helena). To analyze our professional paths, we designed four phases. Firstly, we reconstructed our professional paths chronologically in a matrix. This matrix became a tool to identify our main career shifts and related professional contexts. The focus in this preliminary analysis was awareness of our feelings, ideas, and questions related to each career shift from the beginning until we started to work together. Secondly, we shared and discussed our professional paths in a reflective way, paying attention to significant elements in our professional paths before we met in the Doctoral Program as well as discussing our professional paths after we started to work together. In both

instances, the main issues discussed were the presence of significant others along the path, the transition from one professional context to another, our research interests during the different stages, and changes or developments in new teaching practices over time. Thirdly, we each wrote a professional autobiographical narrative taking into account the key ideas discovered in the previous phases. Finally, in the fourth phase we did a second comprehensive analysis with the aim of extending and identifying significant shifts in our professional path that influenced our assertions, positioning, and teaching practices as teacher educators. This included the ways in which we have learned to be teacher educators facilitated by our association with other members of teacher education programs, such as researchers, student teachers, professors and advisors. Systematic collaborative reflection was employed as both a lens and a methodological tool to seek critical insights for understanding how these experiences in conjunction are related to both conceptual and pedagogical changes occurring during our professional paths to becoming teacher educators. In the end, we realized that by discussing these insights and validating each other's interpretation as critical friends, this work was in fact strengthened.

## Findings

In this section, we present our personal insights followed by an analytical discussion articulated in a collaborative way. Four major themes emerged from the data in relation to understanding the work of teacher educators. Each of these themes is interconnected, and together contribute to an understanding of relational teacher education.

Firstly, when we look at our own professional development, our data showed that our initial ideas on teaching increased in their complexity from understanding teaching as a practice, to seeing the importance of how we as teacher educators look at our own teaching practices. Initially we were seeking answers about teaching and learning through our daily work. Since then, we have transformed the answers we have found into questions about our teaching practices as teacher educators. As a result, our initial focus shifted from a perspective in which the focus of concern was outside ourselves to one in which the focus of concern was inner.

Secondly, as it relates to our interest in teaching and learning processes, we realized that our research topics and teaching emphasis have moved towards a relational perspective. For example, in the beginning Rodrigo's research area was beginning teachers and their induction into professional work (Fuentealba, 2006). Now, his research interests are centralized around the key role of teacher educators in this process (Fuentealba & Russell, 2014). Concerning Helena's research topic, her PhD thesis investigated the professional path and approaches to teaching of teacher educators (Montenegro, 2013). Now, her research interest topic is pedagogical discourse in teacher educators from a dialogical perspective (Montenegro & Medina, 2014). Hence, we are able to see that in both cases the focus moved from the practice of other persons (beginning teachers and teacher educators, respectively) to our own teaching and research practices in reference to those persons. In the same vein, members of the teaching profession have influenced our teaching practices in specific ways, such as teacher education professors, PhD advisors, experienced researchers, other teacher educators, and postgraduate students.

Thirdly, in our meetings we always shared and discussed different issues, experiences and theoretical positions on teaching, learning, and learning to teach, in a collaborative way. Working

together as critical friends helped us not only to discuss and review each other’s work more intently, but also to realize and listen to how our inner speech developed within our spoken speech. It is very different when one listens alone to his/her inner speech compared to having the ear of another to reflect his/her spoken speech about specific matters. Becoming aware of our words, emphasis on expressions, and positioning, was only possible when we articulated a co-generative dialogue between ourselves supported in meaningful listening spaces. Wenger (1998, cited in Williams, et al., 2012) refers to learning in a community as a social practice that is collaboratively constructed through dialogue and social interactions. Our data showed how teacher educator dialogue can reveal much about the assumptions and values underlying teaching and learning, in addition to revealing how teacher educators develop their teaching knowledge. This kind of collaborative learning space allowed us to exchange different ideas that inherently contribute to the expansion of our knowledge about learning to teach. For example, based on his broader experience as a teacher educator Rodrigo’s role has been to provide the necessary theoretical and practical knowledge for framing and analyzing teaching and learning to teach in student teachers and teacher educators (Korthagen, 2010). Conversely, based on her professional experience as a university teacher, Helena’s role was to highlight the importance of seeing teaching as an inquiry-based approach articulated on the concepts of the teaching-research nexus and scholarship of teaching (Brew, 2006).

Table 1: Summary of the main shifting proposed by this study

	Previous to become a teacher educator	On becoming a teacher educator
Focus of reflection	Outside	Inside and in reference to
Content of reflection	The practices of others	My own practice in reference to
Way of reflecting	Alone/Collaborative	Collaborative
Approaching	Reflective Practice	Research practice (self-study)

Fourthly, we were able to see how the approach to analyzing teaching practice has changed from analyzing reflective practices to carrying out self-studies on teaching practices. For example, Rodrigo worked on the concept of reflective practice among teachers throughout his professional path (Cornejo & Fuentealba, 2008). In 2010 Tom Russell introduced Rodrigo to self-study of teacher education practices. As a result, he realized that the teacher educator’s work included paying attention to their own professional learning as well as the learning of student teachers (Fuentealba & Russell, 2014). Conducting rigorous self-study makes it possible to interrogate our personal theories, check alternative viewpoints, collaborate with others, and exchange our tacit teaching knowledge in order to make it public (Loughran & Russell, 2007). Accordingly, starting research in teacher education using this approach contributes to the integration of research and ultimately to the professional development of teacher educators, and allows for the linking of research with teaching by creating active learning communities. In this context, collaborative enquiry is a powerful strategy for improving practice and research within

teacher education (Korthagen, et al., 2005). Finally, a summary of the main shifting proposed by this study is presented in table 1.

## Discussion

Our study builds on previous research on the complexities of becoming a teacher educator (Berry, 2007; Dinkelman, et al., 2006). Examining our own professional path on becoming a teacher educator has allowed new insights about changes in our teaching and research practices, which will be useful to both novice and experienced teacher educators alike. This study reinforced the notion that teaching is a relational activity (Kitchen, 2005). In other words, teaching is always influenced by the different communities of practice to which a person belongs. Therefore, the professional path followed by that person has contributed to the development of his/her knowledge and practice as a teacher and as a teacher educator. We would argue that teacher educators always learn in interaction with others. It is clear that teacher education programs are learning communities not only for student teachers, but also for teacher educators. This is supported by various other studies that have shown that the first professional experiences of a teacher educator play a fundamental role in their professional path and continued development (Harrison & McKeon, 2008; Murray & Male, 2005). If one's first professional experiences take place within a teacher education program, then this setting as a community of practice becomes a relevant place of thinking, learning, becoming, and enacting as a teacher educator. Given that learning to become a teacher educator requires the acquisition of a new way of understanding the knowledge and skills of teaching (Russell & Loughran, 2007), all the initiatives that support professional induction ought to take into consideration the previous experience of the teacher educator.

Another conclusion of our study is the power of engaging in research practices framed in self-study methodology approach. As Loughran (2006) suggested, seeking to better understand one's own teaching practices is a natural starting point for self-study inquiry due to the fact that teacher educators learn to teach not only from their practice, but also from their careful analysis of that practice. Most importantly, they may reframe not only their teaching knowledge in order to share the tacit knowledge of teaching practice with student teachers, but also to share this with other teacher educators. An important characteristic of self-study research is the focus on the "I", which is also the fundamental core of auto-ethnography and narrative self-study (Lunenberg, Zwart, & Korthagen, 2010). Indeed, all of these methodologies of research have been conducted by teacher educators. We are able to hear the voices of teacher educators themselves articulating the complexities of teaching and learning to teach. Teaching knowledge can therefore be said to be a sharing, expounding, and enhancing practice within the community of teacher educators.

Finally, these results have implications for both practice and research. In relation to practice, we propose to start viewing teacher education programs as a collaborative learning space for improving the professional learning among teacher educators, and the production of new knowledge about how to make teacher education more relevant. In particular, our study helped us visualize how some transitions and shifts have impacted our perspective on the work of teacher educators. However, in order to achieve this visualization it was necessary to review this subject from a relational perspective. With regard to future research, we recommend continuing

the research of the teacher educators' work from a relational perspective. We propose the development of research projects between beginning and experienced teacher educators aimed at investigating what it means to be a teacher educator and how this new professional role is a dynamic process strongly related to the collegial and professional context to which they participate.

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## Teacher networks as professional knowledge communities: Contributions from a Brazilian autonomous community of teacher-researchers

*Luiz Sanches Neto<sup>1</sup>, Alan Ovens<sup>2</sup> & Cheryl Craig<sup>3</sup>*

<sup>1</sup>State University of São Paulo

<sup>2</sup>The University of Auckland

<sup>3</sup>University of Houston

Teaching is a complex activity that is dynamic, unpredictable and open to many interpretive possibilities (Davis & Sumara, 2006; Mason, 2008). What works in one context may not necessarily work in another, or even a second time in the same context. For this reason it is difficult to solve the unique and situational problems that emerge in teaching with generic forms of professional knowledge. In fact, often teachers become frustrated when educational theory fails to accommodate the highly contextualized and personal nature of teaching (Bore & Wright, 2009). This is not meant to suggest that teachers do not seek to use theory in their teaching. Rather, it suggests a need to better explore the networks and work cultures that support and validate teachers' ways of knowing. What we need is an enhanced path to understand how professional knowledge is developed when teachers work together in communities or networks of professional learning. In this chapter we report on how one community of teacher-researchers formed a support network for physical education teachers in São Paulo, Brazil. We demonstrate how the narratives, produced by the teachers within this autonomous group, point to shared possibilities of inquiry on their teaching practices and professional learning process.

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*Author Contact:* [luizitosanches@yahoo.com](mailto:luizitosanches@yahoo.com)

<sup>1</sup> This project has been developed in collaboration with ISATT senior researchers since the Biennial Conference held in Ghent, Belgium (2013). Recently, it became a Post-Doctoral research project.

## Context

The focus in this study is on the shared processes within a group of teachers who worked in a self-organised and autonomous way without any formal institutional affiliation or support. Initially, four physical education teachers formed the group in 2005 when they began to contact each other on a regular basis by telephone, e-mail exchanges and occasional meetings. One of the coauthors<sup>16</sup> is a member and co-founder of the group. As other teachers expressed an interest in joining the group, they decided regular meetings were an effective way to foster discussion and reflection. Eventually, as the size of the group grew, there was a need to explore other ways to work as a collective and this led to creating a website in 2006. Currently, the group has 267 members, including teachers from all Brazilian regions and faculty from other areas and different levels of basic and higher education, although the website originally targeted physical education teachers working in basic education.

One way of conceptualizing the work of a group like this is to see it as a kind of “knowledge community” (Craig, 1995a, 1995b) with a form of collaborative partnership existing among its participants. For Craig (1995a), the definition of knowledge community derives from the interpretive necessity of producing meaning. There is a narrative act allowing the mediation – emerging from collaborative conversations that enables each teacher’s knowledge to be visible – of a particular context for understanding and making sense of it. Then, a knowledge community is an interactive space or *locus* where teachers negotiate meanings for their experiences, because they work in professional knowledge contexts and they come to know professional context knowledge in situations.

## Using narratives to research education

Narratives have become an effective way of studying the complexity of educational phenomena (Craig, Yo & Oh, 2012). In the Brazilian context, narrative research has been used to research teachers’ educative practices (Bragança & Maurício, 2008), to understand the relationships between higher education professors and basic education teachers (Fiorentini, 2009), and for exploring school physical education (Molina Neto, Bossle, Silva, & Sanhotene, 2009; Diehl & Silva, 2010). Using narratives as a research tool acknowledges that linguistic forms mediate and organise our perceptions of the world and transform them into knowledge and experience. On the basis of this constructed experience we understand the world and ourselves as well as give meaning and purpose to our actions (Ricoeur, 1991). Narratives contain traces of both the individual’s identity and the mechanisms used to make sense of and represent the world. It is in their potential to reveal the mechanisms through which professional knowledge is constructed, validated and communicated that such narratives become valuable resources for research in physical education (Ovens, 2007).

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<sup>16</sup> We refer to coauthors in respect to the supervisors and the international collaborators (ISATT senior researchers), because this research project has been conceived as a collective and collaborative one.

Narratives are a core tool for (auto)biographical research. According to Bragança and Maurício (2008), (auto)biography consists in a written production by one person on her/himself, with reference to her/his existential trajectory, focusing on the life broadly, without addressing fragments, but seeking the expression of the totality or the essentials of life. When dealing with an investigative community of practice, composed by teachers and professors teaching mathematics in basic and higher education, Fiorentini (2009) provides a detailed life narrative about a group of teachers (on their “know-how” to do) that only addresses who is participating in the collective process that the author describes and interprets. In a similar way, Silva and Diehl (2010) use narrative methodology to create opportunities for teachers to reflect on their actions and foster their work, contributing to the process of permanent education.

According to Suárez (2008), narratives can also be a strategy of pedagogical action-research. For this, narratives should be structured from the establishment of horizontal relationships and opportunities for collaboration between academic researchers and teachers who recount their experiences. The ultimate intention would constitute investigative communities (or of “mutual care”).

The narrative documentation of teaching experience falls within the field of educational research as a particular form of interpretive research that aims to reconstruct, document, question and make critical the senses and pedagogical understandings that teachers construct, reconstruct and negotiate when they write, read, reflect and talk to colleagues about their own educative practices (Suárez, 2008, p.112).

## Research Design

The research design is based on an (auto)biographical examination of participants’ experiences using a narrative inquiry methodology (Craig, 2013; Craig et al., 2012, Ovens, 2007). (Auto)Biography allows participants to investigate teaching problems “from inside”, as well as the resources (social, cultural, technical and curricular) they employ to solve such problems. In particular, their narratives can provide insights into the networks of relationships that teachers form in professional environments and that constitute knowledge communities to guide their process of pedagogical decision making.

The narratives are an individual introspective record written by each teacher to access the highly personal contingents of teaching. According to Nóvoa (2007), the (auto)biographical experiences in the educational field illustrate the amalgam of wills to produce another kind of knowledge, closest to the teachers’ everyday life, valuing individuals as subjects<sup>17</sup>, the quality and the living experience at the expense of structures, systems, and the quantity of what is already established.

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<sup>17</sup> The term “subject” (often used in Portuguese and other Latin languages) is connected with the perspective of subjectivity of an individual, emphasizing their idiosyncrasies and existential standpoint. This notion has been explored in Brazilian physical education curriculum making from Merleau-Ponty’s and Freire’s theoretical benchmarks (Betti, Knijnik, Venâncio & Sanches Neto, 2015).

## Participants

The participants were three women who teach physical education in schools located in the metropolitan region of São Paulo, and who have met regularly with other teachers to discuss their teaching practices for at least four years. The three participants worked in kindergarten, elementary, secondary and/or high school. When enrolled in academic programs, they also accumulated the faculty function as assistants in higher education. However, the discussion about their narratives occurred at distance from their workplaces, through the group website and in public spaces in various regions of São Paulo. In the Figure 1, the participants express their own “worldview”.

	<p><b>Carla</b>  <i>Master and Doctoral student of school psychology (USP, São Paulo). Working since 1998 in kindergarten and elementary school in the private network of the city of São Paulo. I have teaching experience in higher education. I am married with a daughter, white of Polish ethnicity, heterosexual, Catholic and believe in the spirituality of the universe ruled by energies. My beliefs are based on the principles: love, faith and sincerity.</i></p>
	<p><b>Luciana</b>  <i>Post-Doctoral student of education (UFS, Aracaju), Doctor of education, Master and Specialist of school physical education. Working since 1996 in public elementary and high school in the city of São Paulo. I have teaching experience in higher education. I am married without children, black, Catholic Christian. My beliefs are based on the principles: hope, courage and joy.</i></p>
	<p><b>Tiemi</b>  <i>Master of physical education (USP, São Paulo). Working since 2006 in public elementary and high school of the State network in the city of São Paulo. I have teaching experience in higher education. I am married with two children, of Japanese ethnicity, heterosexual, Catholic Apostolic Roman. My beliefs are based on the principles: God, love of neighbor, family, friends, work, professional achievement and teaching.</i></p>

Figure 1. Brief (auto)biography by the participating teachers.

As a reflexive method, each participant inquired into their own teaching and capacity to “make” the worlds they were experiencing (Ovens, 2014), based on ongoing collective questioning and discussion of the stories they shared about those experiences. The participants have not chosen anonymity and opted to share personal information.

## Writing process and analysis of the narratives

We have considered documentary sources generated by the participants, in which we have highlighted their (auto)biographical narratives. We also conducted focus groups meetings and individual semi-structured interviews. The narratives were written by the teachers within the scope of their own discussions and collectively agreed interests, without any specific request by

the researcher for the purposes of this investigation. Before the production of the narratives, the teachers discussed the nature of (auto)biographical methods and considered that their shared experience could be re-signified if they write about it. Then, the teachers tried to identify, in the choices made in their own lives, how they became the teachers that they are.

While the writing of the (auto)biographies was not initiated as part of this research, each participant was invited to contribute their biography for analysis. This meant that there was no prior standardization of how to write the narratives and that the themes identified through the analysis emerged after the writing process. We have used the strategy of triangulation for interpretive analysis (Alves-Mazzotti & Gewandszajder, 1998) of the narratives, establishing relationships between the themes and the personal perspectives inferred from the interviews and focus groups.

## Results and discussion

By revisiting their history through the narratives, the participants sought a deeper understanding of their teaching. They worried about generating empirical data from their practices and used the narratives to share and refract their life stories. In this way they were able to generate knowledge on themselves. It was a necessary step in the organization of the career paths that each teacher elaborated, while reflecting on their professional development and the reasons for joining and staying in the group. This activity was related to the planning of their teaching career, with two senses: the (auto)biography would be their trajectory until the present and the career planning would be their projection for the future.

Through such activities, the participants stepped into spaces for reflection on the professional identity as teachers, what relates to the notion of professionalism in contemporary educational theories (Contreras Domingo, 2001). The participants associated the coherence of their practices to the notion of autonomy, exercising it in the group and enlarging it in the interactive and collective decision-making space of school work. For example, Carla shared how her desire to explore new ideas in her teaching linked with and was supported by the original formation of the group:

*I start considering the students as co-participants in the teaching-learning process. [...] We (Tiemi, Luciana, Luiz and I) started to meet to discuss our school physical education practices and, then, we formed the teacher-researchers group (Carla on students' autonomy and the reasoning to create the group)<sup>18</sup>.*

The opportunity to discuss issues with others in the group acted as a process of “negotiation”, that allowed some participants to overcome the limits to their sense of autonomy in each situated context in which they work.

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<sup>18</sup> Quotes from the participants have been translated from Portuguese into English. Where necessary, the translations have been edited to improve grammar and maintain their original meaning.

They shared issues and through a systematic process of reflection, they reframed their understanding being teachers. Their narratives have shown five themes on important relationships as arranged in the Figure 2.

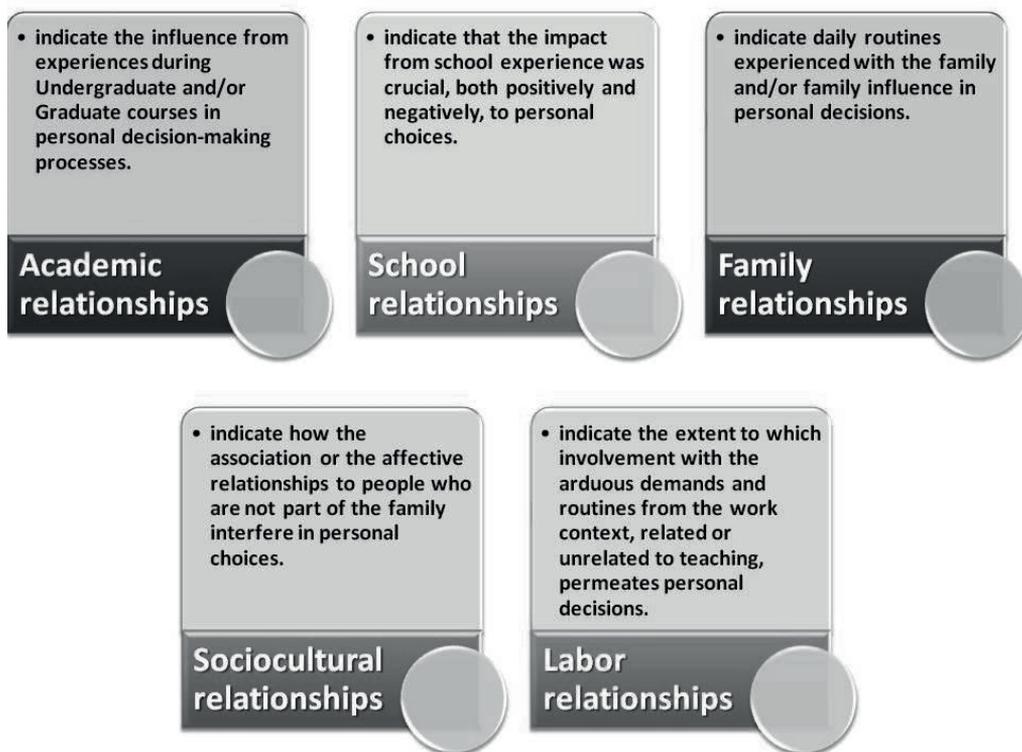


Figure 2. Themes of the narratives.

The (auto)biographical records reveal a web of connections to the academic, school, family, sociocultural and labor contexts. The predominant themes were “family” and “academic” relationships, indicating that, on the one hand, the formative experiences were crucial to the process of professional development of teachers. On the other hand, living with the family also had a decisive influence on the career planning of teachers.

Supported by Gauthier et al. (1998), we understand that teachers’ knowledge has a unique social nature and helps determine the relationships teachers form, considering temporal (viewed across the life of each teacher) and relational perspectives (evidenced in family and academic connections). According to Gauthier et al., knowledge of the pedagogical act legitimized by research is currently the less developed type of knowledge in the set of teaching knowledge (also composed of disciplinary, curricular, academic, experiential and pedagogical tradition knowledge). Paradoxically, Gauthier et al. (1998) point out that knowledge of the pedagogical act is the most necessary to the professionalization of teaching, being endowed with epistemological and political dimensions.

Some aspects of the participants’ professional learning and career progression were also shared in the narratives. One participant mentioned the relationship of her career to action-

research, sometimes linked to work planning, to the structuring of the career or to her research projects in collaboration.

*I started a more in-depth reflection regarding my own pedagogical practice, the work developed in school physical education, and discussed with the autonomous group of teacher-researchers. At that moment, then, I retake the interest with the action-research referential (Luciana on action-research).*

According to Elliott (1994), this may be an indication that the teachers took action-research as their method of work, which is a crucial feature in the understanding of Elliott about being a “teacher-researcher”.

Contreras Domingo (2001) contributes to the understanding of the teachers’ career path, since it is located towards the enhancement of the professional practice. The participants faced, lived and confronted issues pertaining to professionalism and professionalization as their careers progressed. They also encountered professional uncertainty and conflicts, as suggested in the narratives of two participants.

*I have participated in several formative meetings as speaker or mediator [...] due to the experience within the group of teacher-researchers and for participating in the team responsible for writing the physical education curriculum proposal for the entire State network. [...] After twelve years as teacher, I asked for clearance to enroll in the Doctorate (Luciana on her career as teacher, curriculum-maker and researcher).*

*I entered the Master’s with great interest to study theoretical knowledge to teach at school level [...]. When I finished my research, I was invited to teach in one university, the same one I teach at today. But my colleagues from the teacher-researchers group supported to enter the State network and teach physical education at school (Tiemi on teaching concomitantly at school and higher education).*

We identified other themes geared to the teachers’ work underpinning the (auto)biographical narratives: autonomy, authoring and teacher education. All participants in their narratives presented notions of planning for their careers in order to enhance the teaching autonomy and authorship of their own pedagogical work, and analyzed the processes of teacher education and professional development as educational workers.

However, we noticed that the challenges to collectively perform the work still appear as challenges to the participants, either by questions that refer to the professionalism of teachers, or structural issues of Brazilian school systems, as the contexts faced in public and private networks of schools located in the metropolitan region of São Paulo. The participants seemed committed and concerned to resolve such challenges together, supported by the group, when they questioned the quality, rigor and excellence of their work and discussed possibilities for intervention.

*Since 2006, I teach elementary school physical education based on the contents and themes discussed with the group of teacher-researchers. But during 2009, I asked for clearance to work in another school, at high school level, to put into practice the State curriculum*

*proposal and the theoretical contents from the earlier systematization by the group* (Tiemi on her teaching challenges).

Controversially, the most incisive actions by the participants requested their removal from the working places; either searching the emerging problems of their daily lives and qualifying in Graduate programs, or working for the preparation of new teachers in higher education, or coordinating the efforts of peers in administrative and bureaucratic positions, or developing curriculum proposals to subsidize public policies guided by concrete teaching practices.

## Conclusion

We conclude that the teachers' narratives reveal mutual influence of academic and family issues. But for the three co-founders, there is predominance of family background as the most important aspect in their trajectory. On the one hand, the academic experiences were remarkable in the process of professional development for the participants. On the other hand, daily routines experienced with family were also decisive in career planning by the teachers. We realize that such characteristics permeated the professional identity (sense of professionalism) assumed by the participants in their arguments.

The narratives have allowed participants to investigate their teaching "from inside" and the group works as a "knowledge community" (Craig, 1995a, 1995b) with collaborative partnerships existing among its participants. The narratives allowed to access the life trajectory of the participants in their own reflections, according to their "own words". We also noticed that the writing of the narratives had been associated with the career planning of each teacher. Towards our next step, and as suggestion for future investigation, we intend to discuss more and summarize what was learned about this particular knowledge community.

Our main conclusion is that narratives (preferably combined with other research strategies) contribute to understand the participants position as a non-linear stance, referring complexity thinking in respect to teaching being situated and contingent activity (Ovens, Hopper & Butler, 2013), rather than stable and generalized practice.

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## What examining the alternative route to teaching reveals about the learning to teach process

*Melissa Newberry & Stefinee E. Pinnegar*

Brigham Young University

“I wanted to be the knight in shining armor that vanquished the achievement gap-dragon.” This statement was made by a Teach for America (TFA) recruit as he reflected on his goal in becoming a teacher. Whether pre-service teachers come through traditional teaching programs, or through alternative routes to teaching, all come with a guiding metaphor, which influences the ways that they take up teaching and attend to what they learn in their preparation programs.

Most studies on alternative route teacher preparation focus on how satisfied or competent alternative route people are in relationship to those who engaged in traditional teacher education (e.g. Glazerman, Mayer & Decker, 2006). We know some things about the learning to teach process that beginning teachers engage in (Clift, 2006; Sikula, 1996), but few, if any, studies have examined the process of learning to teach of those who participate in alternative route teacher programs. Also, few studies on metaphor examine the story that is enacted by the teacher, guided by his or her metaphor, through the perspective of the teacher. This study attempts to accomplish both.

Identifying one’s teaching metaphor is a useful exercise in that the teacher articulates his or her desires surrounding the teaching self and goals for the classroom environment. Although these metaphors are deeply rooted, Bullough (1991) found that many times when teacher candidates are asked to express their teaching metaphors, they give trite responses and fail to examine the life experience that contributed to that metaphor or the implications that the metaphor will have for their approach to teaching.

Additionally, inherent in metaphor is the positioning of others, which is not always attended to, and which has serious implications for the development of the teacher and achievement of teaching goals. Harré and van Langenhove (1999) argue that in interactions humans

consistently position themselves and others and, in turn, are positioned by them. It is within these interactions that identity is constructed and revealed. The cumulative effect of such positioning leads to establishing identity and selfhood. Therefore, teachers' metaphors provide a holistic view of their identities and conceptions of teaching and learning. In positioning self and others through images and language, teachers create identities and shape the worlds they hope to inhabit (Gee, 2001). Thus, using positioning theory to analyze teachers' metaphors makes visible the teachers' identities, the possible roles open for them and their students, the conceptions they hold of teaching and learning, and the kind of classroom culture they work to enact.

The teacher in this study enters teaching with particular metaphors, or images, of himself as a teacher and what it means to teach. His images/metaphors shape his ability to learn from practice, his TFA classes, his mentors, and his students. Examining how these images/metaphors shape his learning to teach process provides insights concerning both his experience and the experience of those who enter teaching through more traditional routes. Unlike other research on alternative route programs, this project does not critique his non-traditional experience but uses it as a backdrop to increase our understanding of the dynamics of learning to teach. Through the lens of positioning theory, we examine how he positioned himself and those with whom he worked as he navigated his first year of teaching. A careful analysis of the plotlines inherent in the metaphor allows researchers to unpack obligations, duties, responsibilities, and assumptions teachers hold and enact in their classrooms.

## Methodology

Putnam (2009) argues that intelligent response to intractable problems emerges not from research that holds tight to tenets of generalizability but from research that attends carefully to particularity. Educational problems qualify as deeply intractable problems since they are relational and typically involve multiple institutions and humans, both present and absent. Thus, as deep understanding of particular, satisfying and successful responses to individual educational cases are developed, people are better able to respond in ways that make a difference in resolving difficult and reoccurring problems in educational contexts. Stake (2000) argues for the value of studying cases since it allows for researchers to learn from what is both unique and typical in a case. By linking what is learned from both of these elements, to the larger research conversation, the researcher is able to make visible possible responses to other situations. For this work, we have taken up the study of a single teacher who entered teaching directly through an alternative route to teaching program that places the teacher candidate directly into the classroom, with minimal teacher education and some mentoring. Such study allows researchers in teacher education to examine more fully the power of initial teaching metaphors (Bullough, Knowles, & Crowe, 1992), beliefs (Richardson & Placier, 2002), and vision (Hammerness, 2006) in the learning to teach process of those preparing to teach, even within more traditional teacher education pathways.

The participant of this study was a new teacher recruit, who entered teaching through an alternative route program known as Teach for America (TFA). At the start of this study, James (pseudonym) was a recent graduate from a private university in his home state in the western United States, having received his degree in Economics. He is a Caucasian male, and at the time

of the study was 22 years old and newly married. He attended a six-week training through TFA and was placed as the teacher of record in a high risk, inner city school in Baltimore, Maryland. He was assigned to teach three sections of algebra, in 90 minutes class periods, while simultaneously attending classes at a local, well-established university to become certified to teach. Data collection occurred through a private blog established by Melissa, a professor in the department of Teacher Education in the same university from which James had graduated. The blog served as a forum through which she and James would communicate; James choosing the topic for each entry and writing about his daily experiences as a first year teacher to which Melissa would respond. In the first year of the study James made 20 entries from November to July and these were the data for the study.

For analysis, each blog post was printed in hard copy. The authors began by reading all the data produced. In the first reading we simply attended to the story and noted compelling themes and ideas in relationship to research on teaching. In our initial read, we were struck by the metaphor of the “knight in shining armor” and the emotions he identified—particularly the dichotomy of expressions of anger and happiness—and his statements about what he felt he needed from those who were supporting him, and his consistency in identifying those supports as absent. In the second reading, we began to attend more carefully to his emotional responses, his beliefs about teaching and learning, particularly the role of the teacher in the process of learning—that of his own and of his own students—and his considerations of the obligations and responsibilities of administrators, mentors and supervisors, as well as his own. After the second read, as we reconsidered and reflected on the data, we began to recognize the ways in which the metaphor was implicit in many of the challenges James faced and how his explicit statements of his challenges captured this, along with his emotional response and his construction of his interaction with others in his learning to teach process. In our third reading, we engaged two theoretical lenses: positioning theory (Harré & van Langenhove, 1999) and Joseph Campbell’s (1949) construct of the hero quest.

As we developed our interpretation using positioning theory and Campbell’s quest framework, we constantly returned to the data seeking both confirming and disconfirming evidence of our interpretation. In this process we honed and shaped our interpretation, working through disagreements by expanding our examination of the data to reference instances in other places within the data and by refining our understanding of both the data and our analytic tools. Finally, we returned to the participant for his review of our interpretation and to examine whether it resonated with his understanding.

Similar to the strength of the metaphors identified by preservice teachers in the work of Bullough, Knowles and Crowe (1992) and of Hammerness (2005) on the controlling power of teachers’ visions for teaching, James’s articulation of the “knight in shining armor” metaphor seemed to be a controlling image underlying his learning to teach process. We determined that examining how it positioned him in his process would provide insight into his development as teacher.

## Findings

“I wanted to be the knight in shining armor that vanquished the achievement gap-dragon” (line 17-18). This statement from James captures his controlling metaphor that is both explicitly

and implicitly present across his accounts of his learning to become a teacher and resonates with what we've heard as teacher educators from our own students. To understand how the particular kind of positioning expressed in this metaphor can inform teacher educators we provide a careful examination and analysis of it. Unpacking this metaphor allows us to capture the complexity of resistance and growth present in James's learning to teach process.

Using positioning theory (Harré & van Langenhove, 1999), we examined this metaphor in a two-phase process. We begin by analyzing the knight in shining armor metaphor through the lens of the positioning theory triad: illocutionary force, position, and plotline. Next, since the metaphor calls forth Campbell's (1949) archetypal quest cycle, we then used this specification of the elements and characters within the quest cycle to deepen our interpretation and develop a more complex understanding of the resistances present in James's experience of learning to teach.

### *The triad*

Harré and van Langenhove (1999) argue that we reveal our identity and the obligations, duties, and responsibilities to it through our presentation of ourselves within the context of our life circumstances. To reveal the elements of that identity they argue for the using a triad to examine that presentation of self. James's assertion of a desire to be a "knight in shining armor" is a strong statement of his identity as he takes up teaching. In uncovering the complexity of what the positioning in this metaphor reveals we consider first the illocutionary force behind, or his desired outcome for, the statement (Harré & van Langenhove, 1999). The metaphor positions James as a knight; therefore next we examine what that positioning communicates about himself in relationship to being and becoming a teacher. Finally we take up the plotline implicit in that metaphor in order to examine the characters and events that this metaphor suggests would be part of his pathway through teaching.

### *Illocutionary force*

According to Harré and van Langenhove (1999), there are many kinds of illocutionary force (e.g. assertive, advisory, disputative, suggestive, etc.). The strongest illocutionary force is declarative because the spoken phrase brings into existence the desired state. Their example of this illocutionary force is "I now pronounce you man and wife." The use of this phrase, in the appropriate circumstance, actually causes a couple to become man and wife. James's statement about his desire to be the "knight in shining armor" is just that kind of declaration. While he initially expresses this as a desire ("wanted"), later quotes indicate that he has clearly internalized this role for himself in becoming a teacher. He says, "I now know that the achievement gap is the great social injustice of our time, and that we are the brave crusaders of social justice that will change all that" (Lines 168-169). His statement that he is one of the "brave crusaders" indicates that his initial vision of a knight going into battle is validated.

### *Position*

The position that we assert potentially reveals the obligation, duties, and responsibilities we attach to that position (Harré & van Langenhove, 1999). In using the metaphor of the knight in shining armor James asserts that as a teacher he has the obligations, duties, and

responsibilities of a knight. The obligation of the knight is to protect and save the downtrodden, underprivileged, and poor. James stated, “I loved the name [of the school]. I loved the fact that I would get to teach at an urban, Black school that had challenges. I loved the fact that there was a metal detector. I was going to have a real challenge” (lines 20-22). James purposely chose this school because it provided an opportunity to enact his metaphor of being a knight able to save others in the face of great challenges. Although at times he recognized that he might not possess all of the skills and resources in order to do so, he nevertheless maintained his position as their hero. Evidence of his deep commitment to the wellbeing and protection of his students is exemplified by the care reflected in his statement, “After the first kid cussed me out, I almost cried...” What his lament suggests is that he cares deeply about his students; it also reveals his embodied feeling that he was on their side and intended to champion them. Yet, their response to him is a rejection of his role. In addition to being their champion, he also intended to create a safe space for them. His distress in not being able to do that is evident in the following quote, “The first time a fight broke out in my room I was shaken the whole day. It was emotionally draining, and I didn’t know what to do...” (Lines 25-26). Both of these quotes indicate James’s presumed responsibilities, duties, and obligations, expressed as concern regarding his inability to meet them.

### *Plotline*

The plotline contained within James’s metaphor—a knight in shining armor vanquishing the achievement-gap dragon—is representative of the archetypal hero-quest cycle explicated by Joseph Campbell (1949). As Campbell represents this quest cycle, there are numerous characters/events that both support and confront the hero attempting to achieve his quest. When we think about schools, and within James’s account, there are many characters: students, other teachers, parents, administrators, professional developers, government mandates, and supervisors. However, in his condensed statement of the plotline there are only two characters: James and the achievement gap dragon. This sparse plotline is similar to the ways in which most preservice teachers characterize themselves in the role of teacher (Pinnegar, Mangelson, Reed & Groves, 2011). What we discovered through the examination of James’s plotline is that he conceptualizes teaching as a lone battle, that none of the other characters with which he shares the school are part of the quest of vanquishing the foe. This positioning, which locates him in a very isolated space, is evident in his statement describing how he took on the task of teaching. He stated,

I was excited to be there. I painted my room. I got 4 (count 'em, four!) used air conditioners for the school. I was there every morning at 7:30 working. I stayed after until 6:00 most nights! I was pouring my whole life into this school. I would have done anything to help those kids, and that school. But most days I forgot to write my objective for the day on the board. It wasn't really important to me—I knew what the objective was, and I knew how to measure it. (Lines 107-112)

James’s description is beyond Lortie’s (1975) characterization of the teacher closing the classroom door and enacting independent teaching. Here James is completely alone and seems to expect all success to come from his own efforts. This is in line with his guiding metaphor of the knight setting out alone on his quest. Others in the school that offered assistance to help

him, such as the suggestion to have his objective on the board and written lesson plans, were secondary to his abilities and seen as inconsequential to the accomplishment of the quest.

### *Characters of the quest cycle*

As isolated as James's metaphor positions him in his battle to overcome the achievement gap, there are other characters in his narratives. Using Campbell's quest cycle (1949), and identifying the representatives of the elements and participants in James's quest cycle, we develop deeper understanding of ways the metaphor motivates and constrains James's development as a teacher. In Table 1 we identify the character and their definition ("The Hero's Journey," n.d.), along with the person who embodied that character and the evidence from James's narratives that support such identification. Making explicit these characters in James's quest cycle, along with their roles and responsibilities, allows us to see how these characters shape James's experience and his learning to teach process. This process also furthers our understanding of the difficulty and resistance involved in his process of becoming teacher, which hindered James from realizing his ideal as the knight.

Within James's larger personal story, it is known that he has always had interest in the field of education, but it is only when he heard the message of TFA recruiters (the herald) that he answered the call to be a teacher (Bullough & Hall-Kenyon, 2011) and took up the quest as a "knight in shining armor." He viewed the six-week, intensive training provided by TFA as an obstacle course that he had to successfully traverse to enter schools and begin his true quest. He was successful in responding to the assignments, however since he saw the training as "hoops" and did not identify TFA supervisors as mentors, he had a difficult time using—at least in his first experience—what TFA thought they provided (for example, lesson planning, classroom management, and record keeping). Ever present on the landscape of his quest for the boon of "achievement" is a shadow—"the achievement gap," which for James is synonymous with failing schools, and poor teachers/administrators. Those who guard the threshold for achieving his quest, throwing roadblocks in his way in the form of curriculum mandates, policies, and no textbooks are the district administrators.

The allies James identifies are other teachers—but not all of them. He often stories himself as the one who is the ally for other TFA colleagues and beginners. At first, he also saw his students as "allies." James intentionally sought out placement on this quest in a very difficult school with children of poverty who needed to be defended and rescued. Therefore, he expected that they would want to overcome the achievement gap and cooperate with him in his efforts. However, he soon conceptualized his students as tricksters—those who cause chaos and thwart the hero in reaching his goal. He was shocked at the beginning when students were disrespectful and got into fights. He was perplexed that students who should be supportive and helpful seemed to turn against him; by first participating in the lesson planned, making him look good, then suddenly displaying disruptive behavior that interrupted his teaching and indicated critique of him as a teacher. James identifies only one mentor—his dad. He tells of how his dad taught him things and how he expected TFA supervisors, school administrators, and lead teachers would support him. Several times in his narrative he identifies a teacher, an administrator, or supervisor who he initially looks to as a mentor, but in each case the advice given, the skills taught, or the actions taken by them, changes their status. He is unable to see

the critique from these others as support. It seems to him that whenever he approaches them for help and advice they become tempters (demanding he do things he sees as beside the point) or shape shifters (initial supporters who hide their intentions, act disloyally, or intentionally mislead him). James perceives their advice about record keeping, management, or planning (for example) as criticism and statements of the obvious rather than as a potential source of support in producing student achievement in his classroom. Ultimately, the tricksters, shape shifters, and threshold guardians cause him to fail his initial quest attempt. After about 12 weeks James was chosen to be relocated—which he takes not as a simple reassignment but as an initial failure in his quest to overcome the achievement gap.

## Discussion and conclusion

As research has suggested, the images (Clandinin, 1985), metaphors, (Bullough, 1991) and visions (Hammerness, 2006) teacher candidates bring into teaching have consequences for who they are and who they become as teachers. Bullough, Knowles, and Crow (1992) demonstrated the power of metaphors for teacher candidate success in student teaching. Additionally, Holt-Reynolds (1990) showed that teacher candidates' beliefs can determine their ability to take up the lessons taught in teacher education. She found that teacher candidates could successfully complete assignments and demonstrate knowledge on tests, which would imply they had learned what was taught; yet, those skills often do not make it to their teaching. James's account of his learning to teach process, with his metaphor of teacher as "knight in shining armor," shows how the metaphor and the broader plotline have consequences for individual teacher's learning to teach process. James's story is a cautionary tale since his metaphor of self as a knight led him to resist, and in many cases misinterpret, the potential support he might have received. While there is much literature (e.g. Richardson and Placier, 2002) that demonstrates the power of belief and metaphor in teacher education, teacher education programs rarely utilize preservice teachers' images of themselves in complex ways, considering how that metaphor might play out, in order to guide each preservice teacher in learning to teach.

Careful consideration of teacher candidates' metaphors and implicit plotline would enable teacher educators to identify critical junctures in the learning to teach process and tailor our responses to teacher candidates in ways that better support and enable them to become the ideal teacher embedded within their image, metaphor, or vision. As we engaged in a careful, fine-grained analysis of James's experience, we saw how clearly the difficulties we face in educating preservice teachers were present in his experience. Had James's teacher preparation group attended carefully to his metaphor in their response and interaction with him he would more quickly have become a knight in shining armor who, through good teaching, engaged with his students, helping them to overcome the achievement gap.

Consideration of James's positioning and the elements within his plotline as he perceived them allowed us to more seriously examine the context of James's development—the ways he positioned others; the way he experienced his context; the roles assigned to the typical others in a learning to teach experience; and how he received and perceived his preparation. When we consider this as teacher educators, it allows us to be more aware of, and respond to, potential areas of teacher candidates' resistance. This is especially important in an era with the diversity of the student population that teachers face, the changes in practice that will continually

confront them, and the policies and mandates that will be imposed. This calls for teachers who can evaluate difference, practices, and policies in order to grow and develop as teachers who can meet their students' needs and promote their students' development.

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## Assessing pedagogical dimensions of an educational app: A tool for teachers and educators

*Catarina Vieira Rocha & Clara Pereira Coutinho*

University of Minho

Mobile learning has been growing exponentially in recent years. New powerful technologies such as *tablets*, which appeared in the first decade of this century, were embraced by students to fit their lifestyles and become problem-solvers, both in educational contexts and at home, from classrooms to labs, in an ubiquitous way. Tablets use very competitive multitasking softwares, complemented by educational apps to address the personalization of learning and emerging learning styles. Apps from different areas (as gaming, books, entertainment and education) are becoming more and more available, and currently represent 3.1 million apps distributed by the major app stores: 1.35 million for Android, 1.3 million for iOS, 300 thousand for Windows and 150 thousand for Blackberry, according to the site Puro Oxygenlabs in September 2014 (<http://pureoxygenlabs.com/how-many-apps-in-each-app-store/>).

There are now over 80,000 educational IOS apps (Apple App Store), so it is time to discuss the educational quality of those apps, and provide insights to create patterns of quality for the construction of apps for the learning of maths. This is paramount due to different emerging factors: the avalanche and exponential expansion of the app market (Walker, 2010); the diversity of mobile apps (Jonson et. al, 2013); the speed at which developers build and upload their apps on app stores; the fact that over 80% of the educational apps specifically target children; the fact that maths is the second target subject with 13% of all of them (Shuler, 2012); because there are very few apps that go beyond the scope of basic mathematical operations; and because of the lack of empirical studies analyzing the educational potential of these apps (Hirsh-Pasek et al., 2015).

Many experts and researchers have reviewed educational apps and defined criteria to select their pedagogical benefits. Brian (2011) considered the quality of the interface and the app's

adaptability to the user's needs and wants. Vincent (2010) identified the usefulness, curriculum connections, ability to export/import, aesthetics, stability and collaboration as important criteria of the apps. Walker (2010) focused on criteria such as curriculum connections, authenticity, feedback, differentiation, user-friendliness and motivation. Feião (2013) identified the following criteria as important to consider when examining the quality of an educational app: functionality, design, content, pedagogy. Finally, Hirsh-Pasek et al., (2015) argue that there are four pillars related to the high quality of an educational app: active learning, engagement learning, meaningful learning and social interaction.

Although many specialists discussed the criteria to evaluate the quality of an app, a systemic assessment has not yet been established, and there are no clear standards for the evaluation of software for mobile learning. This work goes on to suggest a model to evaluate the effectiveness and quality of educational apps according to four dimensions reported in the literature: motivation, game, learning and pedagogy.

### Apps assessment model

The apps assessment model developed in this study was based on the ARCS Model (Attention, Relevance, Confidence and Satisfaction) (Keller, 1983); the Instructional Materials Motivational Scale (Keller, 1987a); the Kirkpatrick Learning Assessment Model (Kirkpatrick, 1994); the PLAY Heuristics (Principles of Game Playability) (Desurvire & Wiberg, 2009) and the Educational Software Evaluation Grid - Sacausef (Carvalho, 2005). The evaluation model presented in this chapter was designed to evaluate the gaming apps from a thorough and multidisciplinary perspective, including users and educators. In order to systematize the evaluation of apps, we defined dimensions and categories specifically parameterized for the two types of stakeholders in the evaluation model. Students evaluated the motivational dimension, game perspective and learning aspects. According to our model, teachers and educators evaluated the pedagogical dimension.

### Users Assessment through 3 dimensions: motivational, game and learning

This questionnaire assesses users' attitude towards an app. This work was carried out using a questionnaire adapted from the IMMS developed by Keller (1983), which measures the motivation of a learner using a pedagogical tool. The questionnaire developed separately analyzes 4 categories (Attention, Relevance, Confidence and Satisfaction), which, in the author's opinion, together form the basic strategies which promote and maintain the motivation of a user in a learning environment.

#### *Dimension: Motivation*

Keller developed an instrument for the evaluation of motivation in the use of educational material - Instructional Materials Motivational Survey - IMMS. The original survey is composed by a Likert scale that consists of a 36-item-list corresponding to the categories of ARCS Model Keller (1983). The IMMS questionnaire was used by Keller (1983) and other authors (Dempsey & Johnson, 1998; Huang, Huang, & Diefes-Dux, 2010; Savi, von Wangenheim, Ulbricht & Vanzin, 2010). After being adapted and validated, it was used to

measure motivation in learning environments based on digital games. The model presented is based on the IMMS structure, having been adapted to the context of an app. According to Keller (1983), the IMMS questionnaire is robust and although the language can be adapted to specific situations within the R&D, the structure of the instrument should be maintained. The number of questions was reduced to 16, which resulted in the exclusion of 20 items and in some cases there was terminology replacement: where we could read "materials" or "instructional materials", the terms were replaced by "app". The grammatical structure and the meaning of each item were preserved in order to maintain the integrity of the evaluation instrument. The categories in the questionnaire emerged from the ARCS Model of Motivation Keller (1983) and were distributed as follows: Attention (5), Relevance (4), Confidence (4) and Satisfaction (3).

#### *Dimension: Game*

The Game Dimension questionnaire was created based on the information gathered in the co-design sessions (Medeiros, Coutinho, Rocha & Branco 2014) and confronted with the literature review based on the heuristics of Nielsen (Nielsen, 1994), which established the first set of heuristics created for the evaluation of games: HEP Heuristics (Desurvire, Caplan & Toth, 2004) and the subsequent iteration of this work - PLAY Heuristics (Desurvire & Wiberg, 2009). Desurvire and Wiberg (2009) adapted existing usability principles to game design, and the result was a set of principles which help differentiate between good and bad games, organized into some categories: Game Play, Coolness/Entertainment/Humour/Emotional Immersion and Usability & Game Mechanics (Desurvire & Wiberg, 2009). In our work, the questionnaire has 42 questions distributed by different categories: Narrative and fantasy (6), Characters (3), Challenges and Levels (7) Bonus (4) Graphics (3), Control (4), Game Mode (2) Assistance, Feedback and Scaffolding (6), Collaboration (5) and Entertainment (2).

#### *Dimension: Learning*

Kirkpatrick (1994) developed a learning assessment model based on four levels of training the four-level-model by Kirkpatrick is a reference when assessing training and learning. This learning assessment model is currently one of the most used, and it defines four levels to be measured: reaction of the student (level 1), learning (level 2), behaviour (level 3) and results (level 4). In our study, we evaluated the second level: learning. Learning is defined by increased knowledge or intellectual capacity from the stage prior to the experiment carried out to completion. This level uses pre and post test, interview and observations as assessment tools. Learning is a complex dimension that requires evaluation methods directly related to the contents and intricate tasks.

Our study focuses on learning fractions using mathematical gaming apps, which justifies the need to include the specific category Fractions in the questionnaire on the Dimension Learning. The questionnaire has 6 items distributed in different categories: Fractions, (4) Problem-solving (2). The Fractions category is composed by 4 items and tries to assess the user's ability to relate fractions, decimals, and mixed numerals; and the ability to add, subtract, multiply and divide fractions. The second category, Problem-solving, assesses whether the user has developed the ability to solve problems involving fractions and mixed numerals and acquire new problem-solving strategies.

## Educators Assessment through the Pedagogical dimension

### *Dimension: Pedagogical*

The Pedagogical Dimension of our model is based on the literature review, teaching experience and school management experience.

After a literature review based on the assessment of educational software, Brian (2011), Vicent, (2010), Walker (2010), Feião (2013) and Hirsh-Pasek et al. (2015) and educational software in the pre-mobile learning era, Nielsen (2000), Carvalho (2005) Pinto (2007) and many others, we found several evaluation grids used to evaluate educational apps that gave us starting points. We defined nine sub-dimensions to include in the Pedagogical Dimension: scientific rigor; mathematical literacy; curricula; learning objectives; level of knowledge; feedback; collaboration; ethics; and metacognition.

Here we report the focus group work developed with secondary teachers and educators who provided insights to build an instrument to assess educational apps.

### Method

This project was developed at Escola EB 2.3. de Palmeira from the Agrupamento de Escolas Sá de Miranda and involved seven educators from this school and researchers from the University of Minho. In this project, we wanted to hear teachers' opinions about the quality of educational apps and define sub-dimensions, criteria and indicators to include in the app's assessment grid.

This methodology involves cooperation between researchers and practitioners in the field to define the problem, develop solutions in a theoretical framework, evaluate the solutions in the field and reflect, contributing to future research - design-based research (DBR) (Brown 1992; Collins, 1992) or development methodology (Coutinho & Chaves 2001). The work presented here is different from the work by other authors, considering that it has been developed according to the UCD (user-centered design) methodology (Courage & Baxter, 2005) working in iterative cycles where the product is designed, modified and tested repeatedly going several times through the development cycle, iterating and fine-tuning in each cycle until the direct collaboration process (Courage & Baxter, 2005) between researchers and teachers is optimized.

This work is based on a summary review of the research literature on app's assessments and the contribution of the focus group work with teachers and educators. We worked over five successive sessions with a focus group, which included teachers and educators, in order to create, adapt, analyze and assess sub-dimensions, criteria and indicators, as well as to refine the language and functional aspects of the grid.

In this group we included the school Vice-Director, the school/library director, a Portuguese language teacher, the representative of the mathematics teachers of the school, the school psychologist, a few mathematics teachers and members of the research team from University of Minho. The teams met on a monthly basis for five months. Participants worked in a group.

In an attempt to make the research process friendlier, all the conditions which defined the project were previously shared, explained and negotiated. After welcoming and greeting participants, the moderator introduced the activities and discussed the rules.

The sessions had three moments: presentation, practical session followed by discussion and debriefing with reflection of the contributions (facilitating the understanding of the research itinerary and the collection of more accurate data). Participants felt like the focus group session was free-flowing, allowing conversation and promoting group interaction.

In this study, qualitative data were collected. The collection of qualitative data was done by notes taken by the note-taker and observers, notes taken during the debriefing session, transcripts of the sessions and records of the verbalizations and opinions of the teachers and educators. The information collected from the previously reported sources formed the corpus. Qualitative data were analyzed based on content analysis techniques of the corpus (Bardin, 1994).

## Results

During the first session, the researcher presented the aims of the project to the school team: to develop an overview of what makes an app a quality pedagogical instrument, and to build a grid to evaluate the pedagogical elements of an educational app. In the first session, the moderator promoted a brainstorming in order to gather data about educators' and teachers' opinions about introduced topics, and stimulated and encouraged participants to talk about the most important aspects identified in educational apps. After a long group discussion, Mathematics teachers analyzed the first proposal, and their representative presented their opinions in the second session, explaining the most important sub-dimensions which should be included in the grid. In that session, we redefined the sub-dimensions and the final version included 8 dimensions. Thus, scientific rigor and mathematical literacy merged into the single sub-dimension information (see Table 1). The elements of the group had a consensual opinion and agreed with the proposal of the Mathematics teachers' group that scientific rigor and mathematical literacy were redundant and could be replaced by information. In this session, we established the definition of each sub-dimension (see Table 1).

*Table 1.* Definition of the sub-dimensions and indicators of the pedagogical dimension apps assessment grid.

Sub-dimension	Indicators	Definition
Information	Scientific Correction Updated information Literary Correction Literary clarity Uniformity of terminology used	The scientific domain is updated and presents rigor, correction with uniform and clear terminology.
Curricula integration	Adequacy Precision	The contents are current, presented clearly and accurately, fall within the curriculum and suit the cognitive level of students.
Learning objectives	Clarity Adequacy	The learning objectives are clear and suit the expected cognitive level of students.
Levels of knowledge	The existence of different levels Adaptation of the levels proposed in cognitive user Opportunities it provides: backwards / forwards	The app defines different levels of knowledge and respects the learning rhythms of students allowing backwards and forwards between difficulty levels.
Feedback	Existence of timely feedback Existence of navigational aids Adequacy of help in understanding the content Feedback existence in the form of sound / animation tutorials	You receive information about the actions. The Feedback is timely and can be in the form of sound or animation. There are navigational aids, tutorials and helps to understand the contents.
Collaboration	Collaboration between students Multiple users Communication between users	The application allows collaboration between individuals because they share the same screen. The multiplicity of players and the possibility of communication between them promote the collaborative learning and work.
Ethics	Gender Multiculturalism	The application provides integration of representation of both genders and various cultures / races.
Metacognition	Strategy development of problem-solving Creating learning strategies Awareness of limitations Evaluation of the difficulties Monitoring and self-regulation of cognitive processes.	Metacognitive skills allow the student to be aware of their limitations and difficulties, evaluate them and thereafter monitor and self-regulate their cognitive processes.

During the third session, we analyzed the work developed in the first and second sessions, and defined indicators (see Table 1) and criteria (see Table 2) for each sub-dimension.

The theoretical framework was developed around the evaluation including an approach towards Figari's work. According to Figari (1996), the evaluation criteria should be broken down and translated into indicators which are instruments of "interrogation and analysis"

(Figari, 1996, p. 153) that can be "subject to quantification and discrimination" (Figari, 1996, p. 172). Pinto (2007) argues that evaluations are considered strong if they are based on "clear and appropriate values (principles and attributes) and criteria (standards on which to base judgments)" (p. 32).

Table 2. Definition of criteria and items included in the pedagogical dimension apps assessment grid.

Sub-dimension	Criteria	Items
Information	Correction	The information is scientifically correct.
		The app uses correct mathematical literacy.
	Update	The information is updated.
	Uniformity	The app uses uniform terminology.
Curricula	Clarity	The app presents clear language.
	Adequacy	The contents are appropriate to the curriculum.
	Precision	The approach to the curriculum is accurate.
	Clarity	Learning objectives are clear.
Levels of Knowledge	Revelance	Learning objectives are relevant.
	Sequential	The different levels of knowledge are progressive.
Feedback	Funcionality	The app allows students to step backwards / forwards in the levels.
	Temporality	The app features timely feedback.
	Relevance	The app provides set feedback to users' difficulties. The app provides navigational help. The app provides tutorials.
Collaboration	Promotion	The app promotes collaborative situations between users. The app promotes communication situations between users.
Ethics	Respect	The app caters to gender issues. The app caters to issues of cultural diversity.
Metacognition	Regulation	The app allows students to regulate their cognitive processes.

For each sub-dimension definition, we associated all the corresponding indicators. For example, the sub-dimension information is defined as “the scientific domain is updated and presents rigor, correction with uniform and clear terminology.” It can be translated into its indicators which are quantifiable: scientific correction; update information; literacy correction; clarity literacy; and uniformity of terminology used.

The evaluation criteria and evaluation indicators change because of the nature of the teaching resources we are assessing (Pinto, 2007), and must be applied in a timely manner (Squires & Preece, 1996) and contextualized. For this reason, we defined the evaluation criteria (see Table 2).

For our data, we set all the criteria related with each sub-dimension and indicators. For example, for the sub-dimension Information we found the following criteria: correction, update, uniformity and clarity. Those criteria could be translated into items for assessing which can be answered to, such as: the information is scientifically correct; the app uses correct mathematical literacy; the information is updated; the app uses uniform terminology; and the app presents clear language.

During the fourth session, the moderator communicated our findings, and presented the prototype to participants in order to get the feedback from them. After some group discussion, it was possible to refine the language. Then the prototype was updated so as to reflect the feedback from teachers and educators, and again presented to the group in the fifth session. All the items included in the pedagogical dimension of an educational app are represented in Table 2.

## Conclusions

In this chapter, we began to present a model developed to evaluate the effectiveness and quality of educational apps according to four dimensions reported in the literature: motivation, game, learning and pedagogy. In this study, we focused on the empirical validation process of the pedagogical dimension assessment grid through focus group sessions with teachers in order to create, adapt, analyze and assess the sub-dimensions, criteria and indicators, and to refine the language and functional aspects of the grid.

Given the universe of educational apps whose production is not subject to regulation - omitted description in app stores, the lack of information from parents, etc. - we decided to hear the teachers and educators, so as to get to identify the most relevant pedagogical aspects that must be considered in the educational apps production. These results were confronted with the literature and the final result is a conceptual grid with the pedagogical categories included in our evaluation model.

We hope to have encouraged dialogue with key stakeholders, including teachers, educators, parents, learners, and school leaders about the importance of the quality of the educational apps, and offer a grid which can be used by parents when they have to evaluate the quality of an educational app and use those results to take decisions in the process of selecting an educational apps.

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## Narratives of experience in a teacher educator's development

*Tom Russell*

Queen's University

This analysis of a teacher educator's professional learning over more than 30 years focuses on identifying significant transitions and the transformations they inspired. Methodology is drawn from narrative inquiry and self-study of teacher education practices. Narratives of five developmental transitions illustrate the insights gained and the pedagogical progress achieved. The conclusion offers insights based on what the author has learned in a career that focused on improving the quality of learning for those enrolled in programs of initial teacher education. Insights include recognizing the importance of deliberately fostering metacognition, modeling the practices that we recommend to new teachers, illustrating explicitly the many ways that professionals learn from experience, and helping future teachers understand the remarkable stability of teaching practices in schools and in teacher education.

### Theoretical perspectives

My work as a teacher educator has been a journey about learning from experience. Four theoretical perspectives have been most helpful in analysing and interpreting my experiences. Lortie's (1975) phrase, the *apprenticeship of observation*, is easy to refer to but not necessarily easy to act upon. Unfortunately, it took me many years to appreciate the significance of Lortie's ideas for my own actions as a teacher educator. First I needed to understand how my own apprenticeship of observation influenced the patterns that persist in my teaching today. Then I needed to find ways to help new teachers identify how much they learned from their teachers. We learn much more effectively by observation of teaching than by listening to advice about teaching.

Sarason's (1971, 1996) phrase, *the culture of the school*, focused my attention on the fact that schooling truly is a distinct sub-culture where adults and children routinely interact in ways

that are rarely seen outside the school. Like the air around us, the culture in which we live tends to be invisible, but becomes more visible after living in a significantly different culture, as I did long ago as an untrained teacher in Nigeria. As Sarason showed clearly in his many books, the difficulties of generating and sustaining productive change in schools and universities can be explained in part by acknowledging the power of the culture of the school.

Schön's (1983, 1987, 1991, 1995) writings about *reflective practice*, *reflection-in-action*, the pervasive consequences of *technical rationality* (theory first, then practice) and the need for an *epistemology of practice* have attracted both attention and criticism. Coming early in my career, his ideas inspired major transformations in my thinking. Like the contributions of Lortie and Sarason, the implications of Schön's perspectives for new actions are not easily followed. Teacher education can easily give lip service to reflective practice, yet traditional assumptions and practices of teacher education persist.

Cook-Sather's (2002) argument for the importance of listening to students' perspectives focuses on the difficulties of changing not only our common assumptions but also our teacher-student relationships:

Most power relationships have no place for listening and actively do not tolerate it because it is very inconvenient: to really listen means to have to respond. Listening does not always mean doing exactly what we are told, but it does mean being open to the possibility of revision, both of thought and action. . . . Old assumptions and patterns of interaction are so well established that even those trying to break out of them must continue to struggle. And understanding that is part of what it means to listen. (p. 8)

These perspectives and frameworks began to come together in the early 1990s when a colleague and I identified a need to recognise the *authority* that can come from experience (Munby & Russell, 1994). By listening to those I was teaching how to teach physics at the same time that I was teaching physics students in a secondary school, I was confronted simultaneously by the influences of my own teachers, the cultures of school and university, and the challenges of reflection-in-action. Could I walk my own talk? How could I understand the diverse responses of students in my class as I was also teaching in a school? With these theoretical frameworks, a new perspective on learning from experience emerged.

## Methodology and data sources

Clandinin and Huber (2010) outline three types of justification for narrative inquiry and these have guided the analysis and reporting:

Personal justification: Narrative inquirers begin with personal justification, that is, by justifying the inquiry in the context of their own life experiences, tensions, and personal-inquiry puzzles.

Practical justification: In order to justify narrative inquiry practically, researchers attend to the importance of considering the possibility of shifting or changing practice.

Social justification: Narrative inquiries are socially justified in terms of addressing the so-what and who-cares questions important in all research undertakings (pp. 436-441).

The analysis was also guided by LaBoskey's (2004, pp. 817-869) description of five essential characteristics for self-study of teacher education practices: self-initiated and focused;

improvement-aimed; interactive; using multiple, mainly qualitative, methods; and with validity based in trustworthiness.

Data consist of five narratives that describe and interpret major experiences in my career as a teacher educator, experiences that inspired significant developments in my thinking and acting as a teacher educator. The first development involved *teaching again in a secondary school*; soon after, I found a source of *innovative teaching procedures* and came to understand much more fully the *authority that can come from experience*. The *rejection of a radical program innovation* ultimately led me to an even greater *focus on the practicum experiences* of my students.

### Returning to the physics classroom

A year's sabbatical leave in England inspired an unexpected change in my professional practice. Working with five individuals in the science education cohort of the Post-Graduate Certificate in Education program who volunteered to be interviewed about their course and practicum experiences enabled me to engage with school settings in a different cultural context. As I followed their experiences of learning to teach, I also became aware of the general expectation at that time (1990) in the UK that teacher educators should have 'recent, relevant and successful experience' in schools. It had been many years since my last teaching experience in a secondary school and so I wrote to a physics teacher at home to ask if he would consider an exchange of services to enable me to teach a physics class every day of a semester-long (half-year) course; in return he would teach my physics methods class in one of its twice-weekly 2-hour meetings. He agreed, and in September 1991 I found myself standing in front of 26 Year 11 students ready to begin their first full course in physics.

Much of that first semester is a blur of memories as I struggled as most first-year teachers struggle, trying to stay ahead of my students in a textbook I had never seen and in a classroom where none of the equipment was familiar. My teaching partner and his colleagues were supportive. A powerful instance of reframing (reflection-in-action) came at the end of class one day when a student approached me to say that what we were doing in class was not preparing him adequately to solve the problems assigned as homework. I could either ignore his comment or reframe the situation, and thus I realised that I had to work two days ahead of my students rather than solve homework problems at the same time that they were. The semester ended successfully as my students seemed to perform as well as those of my partner on the final examination. I sensed that there was more to learn and so arranged to return to the school to repeat the experience in the following year.

The second experience was qualitatively different from the first, as any second-year teacher would understand. I knew the textbook, I knew which answers in the back of the text were incorrect, and I knew where the equipment was. The new group of students included two who were deaf, one with hearing aids and another accompanied by a person who translated my every word into sign language, providing a vivid reminder of the challenges of accommodating special needs. Had I not returned a year later, I would never have understood how much I learned from the first experience. During the second experience I took 15 minutes each day, on returning to my office, to type notes about the events of the class I had just taught. I was fascinated by the experience of seeing ideas move through my fingers to the computer screen

and back to my brain. I soon realised that typing each day's notes also generated a partial agenda for my next class. Documenting and analyzing my experiences of reflection-in-action provided new insights into what I was asking teacher candidates to do from the perspective of reflective practice.

### Discovering new teaching strategies

At the same time that I was reminding myself of the daily routines and challenges of a science teacher, I was also discovering the power of pedagogy (see Loughran, 2013). I was learning from individuals in Melbourne, Australia about teachers working across departments to develop more powerful teaching procedures. The Project for Enhancing Effective Learning (PEEL) in one school under the leadership of a teacher and a university teacher educator. Following the success of the first school group, teachers in other schools began to discover that new pedagogical procedures and strategies had the power to promote metacognition in the classroom:

The Project for Enhancing Effective Learning (PEEL) was founded in 1985 by a group of teachers and academics who shared concerns about the prevalence of passive, unreflective, dependent student learning, even in apparently successful lessons. They set out to research classroom approaches that would stimulate and support student learning that was more informed, purposeful, intellectually active, independent and metacognitive (PEEL, 2009, ¶1).

Coming to appreciate, understand, and make good use of many PEEL procedures took time and meant taking risks. 'Passive, unreflective, dependent student learning' can be found in teacher education classrooms as well as in school and university classrooms. One of my first insights into ways of introducing future teachers to the power of pedagogy came with the recognition that it is risky and possibly counter-productive to introduce significant innovations with words but no first-hand experiences or to introduce them prior to their gaining personal experience of teaching in their first practicum. When I introduce future teachers to PEEL procedures, I now do so by asking them to plan and present a procedure to their classmates in a way that will allow them to *experience* the pedagogical procedure personally, as either teacher or student.

### Discovering the authority of experience

In my second return to secondary school teaching, I invited my teacher education students to observe my teaching in the school. One of our two weekly classes was held at the school in the classroom where I had just finished teaching; my teaching partner taught the second class at the university. I was eager to know if my daily teaching experiences would make a significant difference in my work as a teacher educator. Some of my students did watch a few of my lessons at the school, but the in-school arrangement never seemed to make much difference and I needed to find out why.

In the second half of their program, when I was teaching all their classes, I interviewed each of 19 students to gain a better understanding of their responses to my teaching. Analysis of their recorded comments was reported as follows:

Striking features of these data include the variety of the beliefs expressed and the strength with which they seem to be held. The students are either dismayed at the lack of specific information in Tom's course about how to teach (while welcoming it in other courses), or they are bewildered by their classmates' high need for certainty. They either decry the opportunities to discuss issues . . . or they welcome them (Munby & Russell, 1994, p. 91).

Recognizing how difficult it is to change personal beliefs acquired over many years of schooling, and recognizing that there are two powerful and familiar sources of authority—the logic of arguments in textbooks and the position of the teacher in the classroom—we began to explore the issue of authority in teacher education.

Learning to teach involves a major transition from being subjected to a teacher's authority to assuming the authority of a teacher and exercising authority over students. Ultimately, we identified the potential of a new sense of authority:

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 (p. 92).

Here was the completely unexpected bonus of returning to the secondary school to re-experience the life of the physics teacher. Quite different responses within one group of future teachers to my two teaching roles stimulated a study that yielded a powerful by-product of 10 years of attention to Schön's ideas of reflection-in-action and knowing-in-action:

The basic tension in teacher education derives for us from preservice students wanting to move from being under authority to being in authority, without appreciating the potential that the authority of experience can give to their learning to teach. The challenge for teacher education is to help new teachers recognize and identify the place and function of the authority of experience (p. 94).

I continue to embrace the concept of the authority of experience as I work to make learning as productive as possible for those learning to teach, both in their courses and in their practicum placements.

### Experiencing the rejection of a radical innovation

In 1997, my university launched a radically new teacher education program design. Learning from experience was at the heart of the new design and was ultimately the reason for its demise. Students arrived in late August, paid fees and met professors, briefly discussed basic principles of lesson planning and classroom management, and began their practicum on the day that elementary and secondary schools opened for a new school year. Their practicum continued for 16 weeks, with a 2-week return to the university near the midpoint. When their education classes began in earnest in January, my students were unlike any I had ever taught;

they had questions grounded in and driven by experience and they wanted answers and better understanding of the issues.

When the 8-month program concluded in April, it was time to take stock of the year. I was both amazed and disappointed that the majority of my colleagues rejected the design. It was my impression that most students were quite positive about the program they experienced. Yes, there were adjustments to be made. Some associate teachers were uncomfortable about having another adult observe their first day with students, but our students were elated to see what happens on that all-important first day. While some teachers said they wanted us to keep our students in university classes for as long as possible, others welcomed their presence on the first day and recognised how valuable a similar experience would have been for them.

The program continued in the following year because student had already been admitted for that design. Again, I found students to be highly engaged and pleased with their program experiences. My personal analysis (Russell, 1999) led me to the embarrassing conclusion that some of my colleagues found it too different and difficult to teach people with extensive experience in schools. Apparently, my research with Schön's perspective on reflection-in-action had moved me away from most of my colleagues in ways that I had not anticipated. Learning from experience is not a common approach in either school or university culture; our profession's collective faith in the importance of beginning with theory and later applying theory to practice seems deeply rooted.

### Focusing on practicum learning

Most teacher candidates see the practicum as the single most important element of their program. As I developed and refined my skills for observing teacher candidates in practicum placements and then meeting with them afterwards to discuss and analyze their teaching, I began to realise how important it is to link candidates' practicum experiences to the activities in education classes. When a colleague and I sought to explore Schön's perspectives on problem-setting and reflection-in-action (1983) and on coaching (1987), we focused on the practicum experiences of those who volunteered to participate in our research.

Many teacher education programs assert that they wish to develop critically reflective practitioners, yet those learning to teach only experience being a practitioner during their practicum placements. During education classes, much time is spent in the student role, responding to the teaching moves of others. Rather than assuming that teacher candidates understand what we mean when we tell them to reflect, I prefer to give them assignments that introduce them to various elements of reflective practice. Over many years I have also come to see the importance of implicitly and explicitly modeling reflective practice to those I teach. When my students return from practicum experiences, I cannot teach them properly if I do not understand how those experiences have changed them, generating new challenges and new questions as well as new understandings of the teaching-learning process.

### Conclusion: What have I learned?

In this narrative of significant episodes in my development as a teacher educator, I have stressed the significance of *learning from experience*. Most teacher educators and the teacher

candidates they teach have spent more than 15,000 hours as students in schools; typically and unfortunately, that time teaches little about learning from experience or connecting theory with experience. I have learned that we all need to make deliberate efforts to understand how we learn from experience and to support and encourage teacher candidates as they learn how to learn from experience. We need to be more metacognitive in our teaching and learning, moving away from the passive approaches that are common in many school and university settings.

Table 1 summarises the insights gained from careful attention to powerful experiences that inspired what Schön (1991) described as ‘reflective turns’. Following Table 1, I revisit the insights to indicate some of the changes to my practice that have been guided by the perspectives of Lortie (apprenticeship of observation), Sarason (school/university culture), Schön (reflection-in-action and reframing) and Cook-Sather (listening).

*Table 1.* Insights gained from experience as a teacher educator.

Powerful experiences	Insights gained
Returning to the classroom	Revisiting the first-year teacher experience is a powerful reminder of how much new teachers need to learn.
Discovering new teaching strategies	New teachers are seeking ways to make learning more active and metacognitive; teacher educators need to model such strategies explicitly.
Discovering the authority of experience	New teachers need to learn how to learn from experience and to identify the theory embedded in powerful pedagogy.
Rejection of a radical innovation	‘Theory first’ is deeply embedded in teacher education practices; shifting to a focus on experience requires time and support.
Focusing on practicum learning	New teachers value guidance in interpreting practicum experiences and linking them to their education courses.

Walking our own talk is a crucial characteristic of successful teacher education. Our words and our tune must not contradict each other. Those learning to teach are attending closely not only to what we teach but also to *how* we teach. They expect to be taught by outstanding teachers from whom they can learn engaging teaching strategies; at times they are disappointed. Time, persistence and risk-taking are all required of teacher educators who seek to match what they are teaching to how they are teaching.

Listening to teacher candidates is important not only in the teacher education classroom but also at the level of the teacher education program. It takes time to learn various ways of listening to teacher candidates and to learn when it is appropriate to listen and what one should listen for. Short ‘exit slips’ at the end of each class now keep me in touch with those I am teaching.

Reflection is an everyday word with many interpretations, few of which involve effort or rigour. I have taught myself to minimise use of the word and to avoid it when naming and

designing assignments. Alternatively, I try to teach and support the skills of reflection without naming them as reflection (Russell, 2005). I also try to model reflective practice by being explicit with students about those moments when I reframe our teaching-learning situations and make changes to improve their learning experiences.

As my personal experience of dramatic program change illustrated, teacher education practices can be incredibly stable. Change can be difficult for teacher educators as well as for teachers; changing a culture will never be easy. Many teacher educators seem not to have studied the influences of their own apprenticeships of observation on how they teach teachers. Many teacher educators seem focused on the content they are teaching, while teacher candidates may be more focused on how they are being taught. Assuming that theory can be learned without experience and later enacted in the practicum setting has failed to produce powerful teacher education. Teacher candidates need to learn how to learn from personal teaching experience; this chapter illustrates one teacher educator's efforts to understand his own learning from experience and to help others learn to do the same.

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## Relationships to knowledge in one Brazilian public school: What do former students learn from Physical Education classes?

*Luciana Venâncio & Mauro Betti*

São Paulo State University

In this chapter, we use the “relationship to knowledge” theory (Charlot, 2000) to analyze the Brazilian educational system and emphasize some issues that affect the situated learning experiences and shared knowledge of participants in those settings. In particular, our focus is on the meaning of what students learn in school Physical Education in the contemporary world. What relationship to knowledge do the students have when they are predisposed to learn Physical Education? Our objective is to understand how students give meaning and sense to their relationships to knowledge from their Physical Education classes.

Since the school is an institution where people teach and learn (Freire, 2002), the attribution of meaning is linked to the relationships to knowledge participants have inside that institution. The topic is complex and demanding because educational researchers from different areas constantly redefine its boundaries. As Laville and Dionne (1999) note, interest in certain problem comes from our experiences, as it is through them that we define who we are. They argue “our experiences are essentially a mixture of knowledge and values, in which we have a greater or lesser extent, with more or less variety and amplitude domain. Knowledge and values that we receive already “produced”, or we learn or transform them, adapting; sometimes we develop them” (Laville & Dionne, 1999, p.89).

There are different schools with daily routines, times, places and individuals. Those singularities of each school are influenced by processes, which legitimize or re-signify legal, political and pedagogical practices from the experiences shared between teachers and students. Their dialogues denote meaning to teaching and learning practices in the communities to which they belong. Both the work of teaching by the teacher and the work of learning by the students are grounded in human relationships that they establish with each other and with the world.

Since 1980s in Brazil there has been a concern to legitimize students' experiences in Physical Education through a range of different theoretical and methodological perspectives. Some of these include:

- Developmental (Tani, Manoel, Kokobun, Proença, 1988), based on the principles of motor learning and development;
- Constructivist (Freire, 1989), referring one logic similar to Piaget's constructivism;
- Critical-Overcoming (Soares et al., 1992; Castellani Filho et al., 2009), with assumptions anchored in historical and dialectical materialism;
- Critical-Emancipatory (Kunz, 1991, 1994), based on phenomenology and the concept of *Sich-Bewegen* ("one's-own movement");
- Anthropological-Cultural (Daolio, 1995), supported by Marcel Mauss' and Clifford Geertz's social anthropological frameworks;
- Sociological-Systemic (Betti, 1991), underpinned by a systemic model with variables that interfere in the teacher's work dynamics.

However, many of these did not find a suitable context to become viable, due to the absence of consistent and permanent education processes for teachers to fulfill their needs (Betti & Kuriki, 2011; Daolio, 1998). This difficulty may have contributed to the appreciation of certain typology of knowledge over others in Basic Education (Betti & Liz, 2003). The contradictory factors contributing to this difficulty, such as Physical Education related experiences lack of importance, suggest clues to understanding the critical and emancipated student.

It is essential that the students' experiences and expectations on different knowledge that constitute the curriculum are evidenced in the direction of strengthening and enhancing the meanings attributed by the students when they learn, not only about but with: Physical Education, Arts, Philosophy, Physics, Geography, History, Portuguese and English Language, Mathematics, Chemistry and Sociology. Varied and new languages and codes associated with these curriculum components are produced by the students and teachers, and need to be rediscovered.

### The students and their relationships to knowledge in Physical Education

The school context involves students' social and cultural conditions that cannot be neglected. Prejudiced social representations emerge from the possible relationships to knowledge by youngsters (former students) from a public school located on the east zone of the city of São Paulo, a region economically jettisoned by the government. Many adjectives – such as perverse and oppressor – are added to the fallacy of failure by students from public schools. In our investigation, we seek to emphasize, from the very words of the participants, their desires, discipline, commitment, effort, knowledge, motivation, enthusiasm, readiness and values.

To Carrano (2011), the "youth" as a field of study has not been able to promote the awareness of young people, because research provides inaccurate information. There is a hodgepodge of concepts that are confused, generated by confused actions from research.

We seek convergence according to three authors to elucidate how some young people establish relationships to knowledge in Physical Education: Paulo Freire, Bernard Charlot and Elenor Kunz. The three authors, based on philosophical, political and pedagogical frameworks,

defend education as a social and political process in which the direction of the relationship (human to the world) is enhanced as searching for something that is missing in the self.

Charlot (2001) and Freire (2002, 2005) explain the continuity of the relationship between knowledge and the student in constant confrontation with the world. Towards Physical Education, Kunz (1991; 1994; Kunz & Trebels, 2006) reinforces such a perspective and requires a more defined stance by both the teacher and the academic community when it comes to understanding the school student. We understand that the student needs to comprehend critically that her/his emancipation is a building process, confronting all issues that prevents her/him from communicating with freedom and autonomy.

Charlot (1996) discusses the meaning that students attribute to school and knowledge. The knowledge that is learned in the strictly academic orientation have no link with the realities experienced by students as they express an “idealized life” and constantly designed for the “future”. The processes occurring in school life are marked by a sense of “becoming” in the future, and the relationship to knowledge is lived at various times, that is, it does not happen in one step, since is mandatory for the human being to learn to be.

The anthropological perspective defended by Charlot (2000) is evident when he presents and systematizes elements that underlie his theoretical proposal on the relationship to knowledge: “The relationship to knowledge of a subject is compared with the world, with her/himself and with others. It is relationship to the world as a set of meanings, but also as activity space, and forms part of the time” (p. 78). For Charlot (2000), some interdependent relationships permeate the attribution of meaning by those who learn: i) epistemic relationship to knowledge; ii) identity relationship to knowledge; and iii) social relationship to knowledge. Such relationships are essential to understand that the world presents itself to the human being and it needs to be realized within a range of meanings, in which language belongs.

In this sense, the principles defended by Freire's critical and liberating education, marked by dialogue and intentionality, seek awareness (of existence) and emancipation by the student to understand and interpret how she/he establishes dialogue with the world, and with her/his own relationship to knowledge. Both the “banking education”, criticized by Freire (2005), and the social condition of origin, questioned by Charlot (2000), should not reduce the student to a condition of not knowing her/himself.

Furthermore, Freire argues that liberating education meets the creativity to transform, and without it there is no knowledge. Although Freire does not present a definition for what is “to know”, the author seems to understand it as the permanent invention we do with the world and with others. Young people, according to Charlot (2001), learned many things before entering the school, and they will continue to learn essential things for their life outside school – but they still continue to frequent it:

They have built relationships with “learn”, with what it means to learn from the reasons why it is worth learning, with those who teach them the things of life. So their relationships to knowledge in school, and their relationships with the school itself are not built from scratch but from the relationships to the learning that they have already built. One does not go to school to learn, but to continue learning (p. 149).

In this sense, as Freire (2002) reinforces, it requires the teacher to respect the students' knowledge, and to "discuss with students the reason and the meaning of their knowledge in relation to the teaching of the school content". This allows us to point out that teachers and students need to understand that everyone enters the school knowing 'many things'. Thus, the school content is an abstraction and, then, what needs to be unveiled in Physical Education is the concrete relationship with sport, dance, capoeira, gymnastics etc.

Kunz (1991, 1994, 2006), based on educational principles defended by Freire, proposes an interpretation of human movement based on subjectivity and intentionality. Kunz's proposal is anchored in the dialogic theory of human movement, which has anthropological characteristics (Buytendik, 1956; Gordjin, 1968; Tamboer, 1979), and is based on the phenomenology of Merleau-Ponty (1966). Kunz (1994) explains the paradigm shift to valuing the 'one that moves', based on humanities, rather than objective and measurable attributes of the movement.

Subjectivity – of what is singular, particular and only the person lives it or realize it – is understood by Kunz (1994) as a process in the concrete social context, through which each human being maintains a tense relationship between being a 'social being' and an 'individual being'. In this process, individuals meet and confront the hegemonic mechanisms that challenge and push for a form of stereotypical development. This assertion by Kunz is essential, because it allows us to realize similar assumptions by Charlot and Freire. Human movement, under an anthropological point of view, must be interpreted as a dialogue between human beings and the world in which the "being-that-moves" must be completely analyzed.

Betti, Kunz, Araújo & Gomes-da-Silva (2007) reinforces that Kunz's concept of *Sich-Bewegen* ("one's-own-movement") can lead to the act of understanding of the world, since the process of teaching and learning is not restricted to the imitation of the form (predefined or fixed movement patterns); in the other hand, it is a quest to the attainment of learned transcendence, which opens the possibility of meeting the world with creative or inventive own movements by the student.

## Methodological choices

To find answers to our questions, we interviewed 13 former students who had successful experiences with Physical Education in a public elementary school located in the eastern region of the city of São Paulo. The participants age 17-19 years and are former students of the teacher-researcher, who is co-author of this chapter.

Fiorentini, Souza and Melo (1998, p. 322) make the important point that: "Although knowledge is personal and evolves with time and experience, it is cultural, that is constituted by the interaction with others 'of our culture'. Our knowledge is not isolated, it is shared and becomes modified from the exchange of experiences and the collective reflection with others."

We used the *entretien d'explicitation* or explanation interview procedure (Vermersch, 2004, 2010). There was a specific questioning device for each participant. All interviews were audio-recorded and transcribed. According to Vermersch (2004), for each statement about the interview is necessary to draw up a device from which you want to explain. It is necessary a plan of action and a suitable location, but also a mediation guaranteed by the sensitive presence of a researcher, teacher, leader or supervisor to facilitate the conditions for awareness and provide

guidance to the participant. This mediation is also a dialogue device and a coherent technique. In our case, the device used in the interviews was the expression: *Knowledge with Physical Education...*

## Results and discussion

The interviews resulted in subjective expressions that rebuilt their singularities over time, constituting 13 epochal units. Freire (2005) suggests that this dynamic guides the decision making on certain issues, regarding the own time by each student. It allows that experienced concrete contexts and generated experiences are valued, since certain topics remain current.

An epochal unit is characterized by the set of ideas, concepts, hopes, concerns, values, challenges in dialectical interaction with their opposites, seeking fulfillment. It is the concrete representation of many of these ideas, these values and hopes, as well as the obstacles to all these issues (Freire, 2005, p.107).

Each explanation interview revealed that the participants referred autonomy, sensitivity and wisdom, shame, individuality and subjectivity, use of the body and gestures, learning for life, experiences, obligation to learn, how to teach, sharing difficulties, criticality, choices and evaluation.

The term 'autonomy' seems to indicate that each student learns and creates together with others her/his own perspective to make decisions, however, without disregarding that others also make their own decisions. Autonomy is associated with the freedom of becoming emancipated.

The expression 'sensitivity and wisdom' seems to distinguish, at the same time as it makes similar the perception and the usefulness of theory, practice and aesthetic appreciation in moments experienced during Physical Education classes.

The concept of 'shame' led to the perception that learning from Physical Education also depends on how the others (teacher and classmates) perceive it. This intersubjective relationship takes time to develop until it does not constrain the expression of the desire to learn.

The notions of 'individuality and subjectivity' differentiate students, but also allow them to recognize that it takes time to learn about themselves. Furthermore, there are differences between individualism and individuality. The latter means the genuine expression of each unique human being.

The meaning of 'use of the body and gestures' seems to refer to a possible representation of knowledge embedded in a network of meanings. For Charlot (2000), the representation of knowledge is a conscious content (inserted in a network of meanings) while the relationship to knowledge is a set of relationships (the network itself).

The 'use of gestures' gives more sense of 'property' and satisfaction to play with colleagues outside of the school. There would be a different relationship to knowledge in 'the street' context in comparison to the learning at school. Bracht (1992) warned that there is a simplistic discourse on the existence of a kind of *sport "of" the school* and *sport "in" the school*. For us,

there is the existence of proper ways and reasons to learn certain cultural elements pedagogically treated as school subjects and contents, such as sport.

The phrase, 'learning for life', means to be aware of the expression of a unique experience in life. It refers to the lived and vivid experience, full of meaning, with which students can learn and even "fall in love" with some content.

The reference to 'experience' was very recurrent and emerged when one participant expressed how the experiences were striking and significant:

*[...] Learning is a set of practices, experiences and interests.*

The 'obligation to learn' implies that teachers and students enter somehow in tune in the process of teaching and learning. There would be an obligation by the student to learn, and he/she shall be predisposed to learn when the teacher explains the content with sincere interest in teaching. This obligation is also linked to the degree of importance given to the teacher's authority.

The 'way of teaching' by the teacher simultaneously brings tension and the possibility of having fun with the process of learning. The tension would be more individual than collective, challenging each student to mobilize her/himself to learn the contents. To Kunz (1999), the teaching method enables the competent appropriation of historical and social reality to promote the necessary changes.

'Sharing difficulties' involves aspects that hinder the learning of the contents, as well as the teacher's ways to motivate students to learn and to find strategies that demonstrate what was effectively learned.

The 'criticality' or a 'critical disposition' regarding Physical Education involves how students 'update their thought' for the elaboration of concepts and argumentation. There is the sense of democratization of knowledge when one participant says:

*I studied in a public school, live in the periphery, and when I tell that I learned those things in Physical Education, almost no one believes.*

The 'choices and evaluation' are often associated with the level of skill that differentiates the learning of each student. It seems to have a connotation that regards training and practice for the students to improve their skills, rather than leveling the knowledge or tied to a note that would ratify what each student knows.

In short, the clarifications from the explanation interviews were instrumental in this research. Each participant could review previous assertions that they were unable to explain before. They ratified or rectified some arguments and provided new interpretations, allowing us to know more about their relationships to knowledge.

## Conclusion

The three authors (Charlot, Freire and Kunz) who theoretically supported this research converged on a few aspects in relation to the: production of knowledge, political and social positioning, and assignment of educative directions. Mainly, the three authors converge to the

notion of human beings as transformers and creators of their own stories and knowledge. Thus, the perception and understanding of permanent human relationship to the world shows that the educational processes do not occur in isolation. Knowledge is a process of reconstruction and positioning. For the participants, the relationship to knowledge is presented as three-dimensional and non-linear (past-present-future) in their stories and continuous creations (Freire, 2005).

The epochal units are the ways in which the students establish relationships to the themes they learn and issues that influence their lives. For Freire (2005), the epochal units are compared with each other in the dynamics of historical continuity, which we understand as continuity of experience. The reminiscences of the participants sparked different standpoints, towards new reconstructions and meanings for their relationships to knowledge. Each subject demonstrated a proper perspective by which she/he expressed her/his individuality during the explanation interview.

We conclude that there is a need to share experiences from the school-educational processes to mobilize students in Physical Education. We have interpreted the experiences of each participant from their explanations of such experiences. In this process, we identified the dialogue as a means to seek consensus and, at the same time, respect the individuality of each student's thought and argumentation. Besides, we valued self-criticism in the explanation of the arguments developed by the participants to qualify the relationships to knowledge in their own perspective.

The school seems to want to 'frame' the meaning and determine the relationships to knowledge by the students. Physical Education goes in a different direction in the students' perspective, because it appears to be a school time and space with peculiar characteristics. From the *Sich-Bewegen* perspective, this peculiarity of Physical Education allows constant reinterpretation, through confrontation and mutual comparison of codes that compose different elements from the movement culture.

Relationships to knowledge extend the possibilities to mediate the reality, unlike the linearity according to which knowledge has been treated in the school tradition as "one-way". The linearity of the school tradition shortens the relationship to knowledge while looking at only one point ahead, directed to the future (that kind of happening which never comes).

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## The role of student teachers' personal and professional values when learning to practise

*Jenny Vermunt*

The University of Otago

Learning-to-practise researchers have been drawing attention to student teachers' self-knowledge, and their personal and professional values in particular (Britzman, 2000; Malm, 2009; Merseth, 2008). This article presents a conceptual framework, research design, and a first set of findings from a study that anticipates informing the research questions:

1. What are the personal and professional values of student teachers?
2. What is the relationship between student teachers' personal values and professional values?
3. How do student teachers' personal and professional values interplay with learning-to-practise processes?

### The importance of understanding how student teachers learn

In order to provide quality learning-to-practise environments, it is important for school and university mentors to draw attention to the range of knowledge that student teachers need in order to develop a positive professional identity. Literature suggests that if student teachers are supported to intertwine self-knowledge with pedagogical knowledge (Tirri, 2013) they gain a sense of purpose that fosters their commitment, resilience, and adaptive expertise (Timperley, 2013).

### Conceptual framework

Britzman (2000) argues that if teacher education is to contribute to a better world, it must ask student teachers to first know themselves, which means student teachers need "self-knowledge of what the world might symbolise or represent for the self" (p. 202). Britzman (2000) concludes that when school and university mentors are faced with policy, pedagogy,

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programming and pecuniary matters, developing student teachers' self-knowledge can become low priority.

However, New Zealand learning-to-practise researchers are suggesting that student teachers' self-understanding is as important as their mastery of specific behaviours, skills and content knowledge (Aitken, 2013). Their values should be foregrounded and not detached from other knowledge or merged under broad terms such as "professional engagement" (Aitken, 2013). Literature suggests that in order to develop positive professional identities that include self-understanding, student teachers need support to make the shift from perceiving "self as normal" to "self as cultural" (Timperley, 2013, p. 48). This shift is fostered by processes that surface student teachers' biographies, personal values and beliefs, and the way these are influencing their emerging teacher roles (Flores & Day, 2006).

In addition, social science researchers emphasise the influence that individuals' values can have on the culture of organisations. They conclude that when members clarify their personal values rather than organisational values, it leads to better workplace attitudes and levels of engagement (Kouzes & Posner, 2012). Educational researchers concur that a value is a "major psychological construct" (Hong, 2012, p.420) and that personal values in particular are linked to professional commitment (Malm, 2009; Merseth, 2008). Branson (2014) depicts values as one in a cluster of internal components of self. One's values interplay with beliefs, motives, self esteem and self-concept which together influence one's external behaviours. We need to be aware of personal values since "when unacknowledged values are influencing our behaviour, these values control our behaviour" (p. 201). By acknowledging our values, we enhance our capacity for ethical action. Therefore in this study a value is defined as

an enduring belief about the desirability of some means; and once internalised, a value also becomes a standard or criterion for guiding one's own actions and thought, for influencing the actions and thoughts of others, and for morally judging oneself or others" (Leithwood et al.1994, cited in Notman, 2014, p.177).

## Study design

The theoretical pathway for this research uses the interpretive paradigm, social constructivist theory and case study methodology (Maykut & Morehouse, 1994; Heck & Hallinger, 1999). This theoretical pathway treats participants' values holistically since they are an expression of their personal and professional selves.

Data reported here was collected from a sample of six student teachers through 60-90 minute long, individual, semi-structured interviews. Interviews were carried out a few weeks into the year-long Masters of Teaching and Learning degree course at the University of Otago, and before they had started professional experience in schools. Degree graduates can apply for New Zealand provisional registration, and can gain full teacher registration after two more years of mentoring in schools. A small number of participants were selected purposively for indepth study, rather than a large number being selected randomly for generalisations. Maximum variation sampling was used in order to offer insights into both particular and central themes across variations (Yin, 2014). Student teachers in the sample are aged between 22 and 33, and vary in gender, nationality and teaching subjects; individual characteristics are described in the findings.

The first set of interview questions probed early and recent family, community and educational experiences that are thought to influence student teachers' personal identities and preconceptions of their teacher roles (Pascal & Ribbens, 1999). A 'living stories' approach was used to organise themes that emerged from the data analysis. This narrative approach situates Lesley, Erin, Eleri, Matt, Isabella and John as the protagonists in their opening individual learning-to-practise stories (Creswell, 2013).

## Findings

### *Lesley*

Lesley grew up in a small, rural, New Zealand community where having a work ethic was highly valued. She recalls hearing frequently that "the grass isn't going to grow if you don't put fertiliser on it." She also recalls that fitting the norm determined whether you would survive in the community where gossip and stereotypes prevailed. She reported that it could be tough in the school and wider community if you were different.

Her family nurtured her achievement and she sought her mother's perspective in particular. On arriving at her new city boarding school with her history of academic, social and sporting success, it was a shock for Lesley when she was streamed "low" for one subject and "picked on." By ringing home often, and seeking help with school work from boarding school peers she was able to persevere, and has become a strong believer in learning from others.

For a semester of her first degree, Lesley studied abroad. She recalls her new international friends talking of their countries, cultures, languages and people. When they asked about her own, she reflects, "It was probably one of the most pivotal conversations of my life ... I didn't know what to say." She recalls thinking at the time, "I'm just the normal." With her self-awareness challenged, Lesley carefully selected her next university papers to stretch her self-understanding.

Until participating in the learning-to-teach course, Lesley had believed herself to be inclusive but is now re-thinking this. "I clearly haven't talked about these things until this course. It goes to show what a sheltered life I've lived." She concludes that her learning-to-practise experiences are balancing what she wants to do and who she wants to become.

### *Erin*

Erin grew up in a close-knit family. At school, she and her brother were part of a Pakeha minority. "Most of my life has been spent realising how different we are to other people." She reflects, "I don't go for the superficial." However, in her tertiary youth group where members shared the same belief system, she felt less of an outsider than she had in school situations.

Erin's parents encouraged her to venture out. She taught in a village in a developing country to improve her foreign language learning, as opposed to being a tourist there. Here she experienced teaching as problem-solving. Afterwards, when assisting with English teaching in a European secondary school, Erin noticed how the amount of summative assessment impacted on young people's future options.

She returned home to teach for a New Zealand company since teaching was fitting with her core value of wanting to serve others. For her this means, "What can I do for this person rather than what can they do for me?" Her spiritual values guide her professional decisions and

actions. Erin reflects that she likes to “push doors” in order to see what God wants her to do. She is also aware that she throws herself into roles wholeheartedly and anticipates struggling to not get too emotionally involved in her students' successes and failures. With these personal values she hopes to provide learners with socially-just and well-supported learning experiences.

Aware of the constraints of the school system with its shortage of time, and a prevailing “who is better than whom” mindset, Erin believes her role is to push boundaries so things can improve. She reflects, “I don't like settling for second best. If I can push for what I think is the best option, then I'll generally go for that.” She values perseverance, and anticipates needing courage in her new role.

### *Eneri*

Seeking a better future for their son and grandson, Eneri's family brought him from their island home to New Zealand for secondary school education. In school, Eneri reported feeling isolated when he and other students from island nations were excluded from whole school assemblies and pulled out of class by a liaison person for “pastoral care.” Eneri recalls thinking, “I don't want to go.” He reflects, “I hated being grouped.” He wanted to be in the classroom learning environment with the teacher. His family valued Western education, held high expectations for Eneri and wanted the school to do the same. They were keen for him to integrate and compete for academic results. Having spoken three languages from a young age and with his own identity, dreams and values, Eneri felt stereotyped and insignificant when assigned to a broad ethnic group which was often separated off from the rest of the school, but he reflects, “I survived.”

He remembers a social science teacher who provided his class with opportunities for role play. They imagined conversations between Shakespeare and Martin Luther King. “It's not about dates. It's about consequences,” his teacher would say. “So I dreamed of being Rosa Parks,” Eneri recalls. He believes it is the teacher's responsibility to provide opportunities for students to say what's on their minds and to foster their ideas.

Eneri believes that statistics showing poor achievement of ethnic groups in secondary schools can generate deficit theorising amongst student teachers about their future students' potentials. “They group all the individuals into one,” Eneri observes. He believes data can feed assumptions about which students in classrooms should do well and which students should not.

Eneri has high expectations of himself and explored studying law and media before settling on teaching. He values freedom, higher order and creative thinking, expressions of identity, voice and respect for elders. Aware of the influence of teachers' mindsets, he aspires to acknowledge the unique culture and imagination of every student, and plans to get alongside parents to “nudge” rather than overpower them.

### *Matt*

Matt looks back on his schooling in his home country where his teachers believed he had no prospect of succeeding in mainstream secondary classrooms and should go to alternative schooling. However, his parents fought the system. His mother found a tutor who offered Matt a curriculum of hands-on experiences with opportunities for problem-solving and creativity.

Matt reflects, “He was a very important person.” He believed Matt could do anything, did not put him off tasks and used creative ways to guide him through.

Encouraged by his parents to travel, Matt worked in a mission school in a developing country. He taught villagers woodwork and set up a youth group. Eventually he looked after the construction of school and church buildings in the area and at the same time learned their language. This experience prompted him to consider teaching as a career. On a new project in another country, Matt’s role was to help a community create products to sell to generate an income. Matt recalls needing to be “quick-footed” and adaptable when guiding individuals. He recalls exploring different avenues and pushing boundaries. “This is something I believe in,” he reflects.

With his degree and plans for the future, Matt has settled in New Zealand. He values giving students agency and reflects, “I want to change the thinking that there are thick kids who should go to subjects that are not academic ... I want to change that attitude.” He looks forward to designing experiences using the New Zealand Curriculum and thinks, “The social aspect of everyday life can feed into students’ study and learning.” He hopes that his new school communities will be open to ideas as well.

### *Isabella*

A first generation New Zealander with European parents, Isabella reflects that her family value of self-worth, their spirituality and their occupations have fed her interest in psychology and behaviour. She was labelled by peers at school as “too deep” and felt an outsider. However, she recalls subject assignments where she could explore her identity.

While studying, Isabella spent summers working with Dutch-American people in a rural setting where she recalls feeling a sense of belonging for the first time. Later she worked for a health promotion organisation in secondary schools and reflects, “This helped me to unpack all these social norms that are actually quite harmful.” Positive feedback from students in her classes prompted Isabella to pursue teaching as a career. She values connectivity and safety in communities and believes this is necessary for students’ and teachers’ learning.

Aware of the cycle of uncertainty and resolution that comes with learning in a new environment, she reflects prospectively, “My commitment is just to keep engaged with that process.” At adult education workshops that she attended prior to this course, Isabella recalls the environment created by facilitators when teaching her how to confront prejudicial language. She recalls participating in workshops where experiential learning methods uncovered gender and racial injustices. Isabella believes it is counterproductive to not use experiential and dialogic approaches when examining culture and self while learning to teach, and believes, “There’s teachers that are in classrooms that don’t understand ... ’cause they haven’t addressed their own underlying racism.” She values group discussion where she believes it is important to be aware of the impact of one’s word choice.

Much of the educational literature in the learning-to practise course resonates with Isabella’s emerging professional values, but she thinks that assessment practices may marginalise students, and therefore wonders if she’d be better in Steiner Education. However, she thinks the philosophy of the New Zealand Curriculum will allow her to model her values and bring integrity to her new role. She says she is constantly trying to figure out what her values are and how to stick to them, and wants her future students to do the same.

*John*

John makes sense of experiences through stories. Brought up surrounded by stories of friends, of family, of communities, of religions, of history and the Bible, he noticed important and recurring ideas. He recalls, "Pains and suffering resonated for me ... something broken can be fixed." He is conscious of his personal theories and believes he has a responsibility to test these against others' narratives to improve his understanding of self and others.

John conveys the story of his mother's parents who were both orphans, and how his grandfather had been found outside a picture theatre- a "dark-skinned" baby with "no identity." In contrast, John's father could trace his heritage back to an 11<sup>th</sup> century Scottish clan. John tells how his mother and new step-father bought a property that shared a boundary with the family home where he lived. He has a sharp memory of a "breach of trust" when his father literally passed him over the fence to his step-father. He recalls, "I was constantly trying to figure out who I was by conversing with my brothers ... in this sort of broken world."

John believes that philosophy is worked out in practice. He describes teaching in an organisation catering for students unable to be in the school system. It was a family environment where the teaching team focused on building trusting relationships. This environment allowed John to get alongside students and try to understand the different ways they engaged with life. He thinks the mainstream school system restricts "human flourishing" because of economic values and that perspective taking, critical thinking, reflection and self-understanding foster a more personalised education experience. John strives to remain open to new understandings and believes, "We are people who make values and we are people who create culture."

## Discussion

Themes about student teachers' personal and professional values emerge from these opening data narratives. Significant people and experiences have shaped these student teachers' personal values, and these values guide their choice of work or study, their eventual decision to become teachers and their envisaged professional role (Sugrue, 1997). Personal values are of the utmost relevance to student teachers' professional identities (Malm, 2009; Merseth, 2008).

A theme to emerge from the narratives is the professional value of personalising learning for students. The student teachers in the sample have known the presence or absence of responsive teaching as school students themselves, or later as teachers in various communities (Sugrue, 1997). Isabella and Matt believe the New Zealand Curriculum enables them to design and adapt learning experiences for students, and are hopeful of taking on this role. Loughran (2007) points out the paradox that occurs when student teachers need and desire to adapt to others while also needing to develop an identity of their own. These first findings show that this paradox makes sense to them since their personal values include self-improvement as well as a mission to improve students' lives.

Another theme across some narratives is the incongruence between student teachers' emerging professional values, and educational values that may be at play in departments and schools (Samuel & Stephens, 2010). Having already held complex rather than "quasi" teaching roles (Sugrue, 1997) Matt, Isabella, John and Erin have become aware of the importance of problem-solving and making adjustments. However, they anticipate that their professional

values may not fit with mindsets, pedagogies and assessment requirements in mainstream learning communities. Feeling vulnerable, they mention using coping mechanisms such as flight, bravery, problem-solving and phoning home (Johnstone, 2014). If school and university mentors understand the interplay of values between student teachers' personal and situational contexts, and form supportive relationships with student teachers, they set the scene for joint problem solving that leads to learning, rather than leaving (Hong, 2012).

All student teachers in the sample have positive core personal values that give a sense of "purpose" (Tirri, 2013) "mission" (Korthagen, 2005) or "calling" (Johnstone, 2012) to their teacher role. This drive prevents them from giving up or uncritically adopting others' norms and values (Flores & Day, 2006). Erin, John and Isabella in particular, emphasise the influence of their families' spirituality on their humanising personal values of social justice, creativity, hope in the face of struggle, self-worth and service. Attention needs to be given to humanising personal values, because these may give rise to a stronger sense of professional purpose (Branson, 2014). However, Hong (2012) argues that a sense of purpose, regardless of its source or strength, will not be enough to ensure student teachers do not leave during the initial learning-to-practise course or their early years of teaching. Day (2014) concurs that it is not sufficient to simply leave emerging teachers to draw on their sense of mission. Converging forces of organisational values in schools and university courses are likely to challenge student teachers' core personal values, which is shown to interrupt their sense of purpose, their confidence and maybe even their wellbeing (Johnstone, 2014). The sample of student teachers in this study is no exception.

Another important emerging theme is the role of adult learning processes and the implications for professional learning environments. Isabella reports that she learns best when she understands why she is engaging with particular concepts, and when she is actively examining personal and professional experiences in safe learning environments. Knowles (2005) argues that adult learning principles, or andragogy, should underpin the design of adult learning processes. With these guiding principles, student teachers are able to reflect on their personal and professional values and their interplay with values at work in educational organisations. Hong (2012) also argues that early career teachers can develop the capacity to be committed in their early career years, if they can learn to become self-aware from the very start. In support, Korthagen (2005) asserts that self-awareness expands if learning-to-practise environments foster communities of practice where structured core reflection is valued.

Another theme to emerge is student teachers' capacity to perceive "self as cultural" rather than "self as normal" (Timperley, 2013). Britzman (2000) emphasises that the work of self-knowledge involves acknowledging not only what one wants to know, but also what is difficult to know about oneself. Guided by their personal values, these student teachers want to interrupt notions of 'normal' in learning communities and realise this involves expanding self-understanding. Amidst assumptions about what is cultural, Ereni foregrounds the self. Erin and Matt seek to adapt the self in the best interests of students. John is constantly revising his self knowledge against others' perspectives, and Isabella anticipates learning more about herself through cycles of renegotiating and reconstructing her identity (Sugrue, 1997). Just weeks into the course Lesley is thinking, "I'd considered myself to be a very inclusive person ... then I realised I wasn't as good as I thought I was."

## Conclusion

These findings suggest that personal values of student teachers in the sample are fostering positive professional values and teacher identities. These values are the lens through which student teachers will make sense of their first professional experience in secondary schools. Future data will be collected using semi-structured interviews as well as journal writing. Future questions will explore the student teachers' critical experiences, surrounding contexts, motivations and options, in order to reveal the ongoing role played by their personal and professional values.

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## Exploring Hong Kong secondary school teachers' teaching beliefs on differentiated instruction

*Coby Ka-Yau Wu, Sally Wai-Yan Wan & Ylena Yan Wong*

The Chinese University of Hong Kong

One of the great concerns in Hong Kong classrooms is catering to individual differences (CDC, 2009). Differentiated instruction is regarded as the most effective means of addressing learner diversity. Teachers play a vital role in developing classroom routines that address learner variance in readiness, interest, and learning profile, rather than using a “one-size-fits-all” approach (Tomlinson, 2003). Teachers in Hong Kong apparently face dilemmas and challenges in their instructional practice (Ng & Rao, 2008). Whether Hong Kong teachers can implement differentiated instruction successfully depends on their teaching beliefs. This chapter attempts to explore their teaching beliefs on differentiated instruction.

### Literature Review

#### *Differentiated instruction*

Differentiated instruction aims to address the diverse needs of individual learners provided with an opportunity to work at a moderately challenging level (Tomlinson et al., 2003). The needs of students are addressed in an organized and flexible manner by adjusting teaching and learning methods proactively according to their ability level, and helping all students achieve maximum growth as learners (Matthews & Foster, 2009). Differentiated instruction is conducted by structuring a lesson with the key elements of curriculum and assessment strategies that can be differentiated by content, process, and product (Tomlinson, 2003). Tomlinson (2005) stated that the barriers to differentiated instruction are based on teachers' misconceptions of differentiation.

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### *Teaching beliefs and differentiated instruction*

Teaching beliefs are defined as “tacit, often unconsciously held assumptions about students, classrooms, and the academic material to be taught” (Kagan, 1992: 65). Such beliefs act as a filter through which instructional judgments and decisions are made (Fang, 1996), affecting and shaping the attitude of an individual towards the task at hand (Ahsan & Anjum, 2012). Teaching beliefs and perceptions “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: 89). Previous studies have noted that teaching beliefs are positively related to student achievement and learning outcomes (Çakir & Alici, 2009). Teaching beliefs are crucial in influencing classroom behaviors that affect teachers’ efforts, persistence, and resilience when faced with difficulties with students (Gibson & Dembo, 1984). Teaching beliefs affect their willingness to embrace or fluently achieve differentiated instruction (Brighton et al., 2005).

Teachers are generally positive toward the inclusion and use of differentiated teaching strategies (Scott & Spencer, 2006). Local Hong Kong teachers’ teaching beliefs in terms of differentiated instruction have seldom been explored (e.g., Chan, Chang, Westwood, & Yuen 2002; Wan, 2016; Wan et al., 2015). Information for future planning of professional development activities that address teachers’ needs in implementing differentiated instruction is also insufficient. This study thus intends to investigate in-service teachers’ teaching beliefs on the use of differentiated instruction. This study aims to contribute to literature in the local context. The findings can also help inform teacher educators in pre- and in-service teacher education. The central research question of this study is *What are the in-service teachers’ teaching beliefs with respect to differentiated instruction?*

## Methodology

### *Research design*

This study uses a mixed-method design (Creswell & Plano Clark, 2007) that consists of a survey of two secondary schools and two focus group interviews, which is part of a large-scale study on teachers’ perceptions of differentiated instruction.

### *Data collection*

The data were collected from a questionnaire and interviews. A questionnaire was developed after an extensive literature review of studies on teacher beliefs and differentiated instruction. The questionnaire was based on Scott and Spencer’s (2006) 15-item scale, which is on a 6-point Likert scale ranging from 1=strongly disagree to 6=strongly agree, to explore teachers’ teaching beliefs on inclusive and differentiated teaching practices. Scott and Spencer (2006)’s scale was selected because its items are relevant to differentiated instruction and issues related to learner diversity. The reliability of the scale is good, with a Cronbach’s Alpha coefficient of 0.72, whereas its sub-scales contain two factors: beliefs toward differentiated instruction, with high reliability ( $\alpha=0.91$ ), and beliefs on inclusive education, with a fairly good reliability ( $\alpha=0.73$ ).

An interview guide was developed for focus group interviews. Semi-structured guiding questions were designed to obtain in-depth information. The researcher ensured the content validity of the questionnaire and interview design by asking three experts specializing in teaching beliefs, differentiated instruction, and curriculum research methods for their professional advice.

### *Data analysis*

Using the Statistical Package for the Social Sciences (SPSS), the quantitative data were analyzed, including frequencies, percentages, means, and standard deviations. After transcribing teacher interview data through constant comparative method (Lincoln & Guba, 1985), coding was completed according to an extensive literature review, and categories and themes were then analyzed by searching for similarities or differences within the data.

## Findings and Discussion

### *Teaching beliefs on inclusive and differentiated teaching practices*

Table 1 presents the combined mean scores of teachers' teaching beliefs on inclusive and differentiated teaching practice. Teachers have positive attitudes toward differentiated instruction, with a mean score of 4.46 (S.D.=0.73). Comparatively, teachers' teaching beliefs toward differentiated strategies (M=4.54, S.D.=0.73) are stronger than that of inclusive education (M=4.26, S.D.=0.73). On one hand, teachers highlighted the importance of differentiated instruction. Interviewed teachers realized that learners differ in several aspects, including academic abilities, learning styles, personalities, interests, learning attitudes, maturation rate of thinking, learning experiences, and so on. Several teachers signified that *"Every student has their own rights to learn, need equal treatment, to help students in need"* (S01-12 written comment). Other teachers also stressed that *"This is to respect everybody. This is an ideal way in education."* (S01-07 written comment) in which teachers should *"[teach] according to different abilities, [help] students to achieve certain learning outcomes based on their personal abilities, and help them further strengthen learning abilities"* (S04-15 written comment).

On the other hand, teachers doubted the effectiveness of inclusive education. In the survey, Item A15 "Students with learning difficulties hold back students who are not impaired" (M=3.31, S.D.=1.23) obtained the lowest mean score (see Table 2). Nearly 40% of the teachers (N=21) disagreed with this item. One teacher wrote, *"Is inclusive education used by the government as a means to cut the cost? Is this really the best method to students?"* (S01-19 written comment). Forlin (2007) also supported the view that the values of inclusive education may not be easily accepted by Asian teachers. Different studies have revealed that inclusive education can be difficult to implement because of large class size, inadequate teacher education, examination-oriented curricula, and so on (Chan et al., 2002; Dowson, 2007; Forlin, 2007; Wan et al., 2013).

Table 1. Teachers' combined mean scores of teaching beliefs on differentiated instruction.

	So1		So4		Overall		Cronbach's Alpha	N of Items
	M	S.D.	M	S.D.	M	S.D.		
Teaching beliefs	4.69	0.71	4.29	0.70	4.46	0.73	.72	15
• Beliefs on differentiated instruction	4.75	0.73	4.38	0.70	4.54	0.73	.91	11
• Beliefs on inclusive education	4.52	0.87	4.08	0.87	4.26	0.89	.73	4

Note: To 2 d.p.

### *Student-centered versus teacher-centered approach*

Both quantitative and qualitative data reveal that teachers tended to use teacher-centered approaches in differentiated instruction. In the survey, Item 11 “By posing different questions, I can test understanding at various levels” (M=4.87, S.D.=0.91) is the second top item. During the interviews, questioning is frequently mentioned as a means of differentiated instruction. One teacher shared how he used questioning;

*when we know that student who is obviously not that smart, you will ask simpler questions and give more prompts and guidelines. Er.. when you know who is smarter, you will ask more higher-level questions. (S03-Teacher C, 23 May 2015)*

Other top items include task analysis (M=4.74, S.D.=1.05), using specific vocabulary (M=4.69, S.D.=0.91), and building on previous knowledge (M=4.67, S.D.=0.95). These top items are based on teacher's instructional design. In contrast, student-centered approaches are less recognized. In the survey, Item A3 “If I allow some students to present assignments in a variety of ways, I may be giving some students an unfair disadvantage” (M=3.55, S.D.=1.25) has the lowest mean score. Half of the teachers (N=27) disagreed with this item (see Table 3). Although differentiation instruction by product is one of the key components in catering to learner diversity, teachers probably neglect students' active engagement by providing them with “choices” (Brighton et al., 2005). In this case, time factor appears to be one of the crucial factors influencing teachers' decision-making in using the student-centered or teacher-centered approach. A teacher explained,

*Questioning is to help them [students] to think...due to less lessons available to lower form [lower secondary grade level] students, group work seldom can be used, questioning can be useful to help them, that means they can establish their self-confidence, and they feel happy when they can answer the questions. (S01-Teacher C, 23 May 2015)*

Lack of time appears to be associated with external demands for academic results. One teacher expressed, “*In reality, teachers don't have so much time for preparing and carrying out a lesson. In addition to pressures from public examination and accountability for academic results, teachers' action for curriculum adaptation is only a luxurious ideal*” (written comment, S01-07). Another teacher stated,

*Teachers have too much workload. For example, I have asked five to six weaker Form Six students to have extra class every week. You have to prepare before that and you have to mark the homework afterward. It spends a lot of time. It is one way of catering learning*

*difference but you suffer a lot if you do it to every class. It is not only the one hour that you face them, it is the preparation and the marking and analysis that count, where you have to ensure everyone can handle public examinations. (S04-Teacher B, 21 May 2014)*

Therefore, effectiveness of differentiated instruction can be restricted by academic-oriented culture (Forlin, 2007), where fewer attempts to respond to students' needs in terms of readiness, interests, or learner profile.

Table 2. Mean scores of teachers' teaching beliefs.

Items	So1 (N=23)		So4 (N=31)		Overall (N=54)		
	M	S.D.	M	S.D.	M	S.D.	
A1	I can assist some students to learn with the use of carefully prepared prompts.	4.61	0.99	4.16	0.97	4.35	0.99
A2	A student's comprehension of text will be dependent on activating prior knowledge.	4.52	1.20	4.29	0.74	4.39	0.96
A3*	If I allow some students to present assignments in a variety of ways, I may be giving some students an unfair disadvantage.	3.23	1.31	3.77	1.20	3.55	1.25
A4	Students who have difficulty maintaining concentration and completing a task and therefore develop more effective routines.	4.87	1.29	4.42	0.89	4.61	1.09
A5	When I help some students make links and build on previous knowledge, I am encouraging success in learning.	4.96	0.98	4.45	0.89	4.67	0.95
A6	If I teach and visually display context specific vocabulary, students' writing will be enhanced.	4.78	0.85	4.61	0.96	4.69	0.91
A7	Prior to teaching a new skill, it is necessary to analyze a task and ascertain the knowledge and skills that are required.	5.04	0.88	4.52	1.12	4.74	1.05
A8	Effective classroom management improves teaching and learning.	5.39	0.94	4.90	0.89	5.11	0.93
A9	If I provide graphic organizers for students to record their work, it will lead to better understanding of material.	4.57	0.90	4.71	0.90	4.65	0.89
A10	Cultural diversity among students will lead to different interpretations of the same text.	4.65	1.03	4.23	0.62	4.41	0.84
A11	By posing different questions, I can test understanding at various levels.	5.17	0.94	4.65	0.84	4.87	0.91
A12	All students can learn, given an appropriate educational environment.	5.17	1.03	4.52	1.00	4.80	1.05
A13	All students can be successful in my class.	4.78	1.09	4.10	1.33	4.39	1.27
A14	I can ensure that all students experience success by adapting the curriculum.	4.48	1.24	4.06	1.15	4.24	1.20
A15*	Students with learning difficulties hold back students who are not impaired.	3.32	1.21	3.35	1.25	3.31	1.23

Note: To 2 d.p. (\*) Reverse items

*Inclusive education, classroom management, and teacher-student ratio*

Teachers expressed concern for the large class size in relation to inclusive education. They were doubtful about a large teacher-student ratio, which may have a negative effect on the effectiveness of managing learner diversity.

*Absolutely, class size affects how we teachers manage learner diversity. Teachers most likely have to give more time to handle them.* (S01-Teacher A, 23 May 2014)

*We don't have space and resources for that. If I have so many assignments to mark, am I able to spend two extra hours to teach a weaker student? I would love to but usually there is not enough time.* (S04-Teacher A, 21 May 2014)

*If there are five students in each class that needs extra care after school, you have to spend five days for them. But you are not only teaching one class but three to four. You don't have so much time. You may say that I have vacant lesson time but they need to have lessons. We can only do that during recess or lunchtime ... The best time is after school but they may need to go to tutorial school. This is not controlled by teachers.* (S04-Teacher C, 21 May 2014)

In the survey, Item A8 “Effective classroom management improves teaching and learning” (M=5.11, S.D.=0.93) has the highest mean score. Nearly 40% of teachers (N=21) strongly agree with this item. No other items except for Item A8 have obtained a mean score of more than 5.0. Therefore, teachers place significant emphasis on classroom management. This finding is most likely related to the problem of large class size (Forlin, 2007).

However, teachers developed specific routines to cope the problem of large class size. During the interview, one teacher shared how she managed the students to perform their tasks at different paces tasks,

*I tell those students who have completed the task quickly to go to help other slower students. Yet when you saw more and more students have finished the task, then I will start to restrict them. I instruct them to get back to their seats and ask them to do another new task. That means there won't be too many people going around in the classroom.* (S01-Teacher B, 23 May 2014)

*Family support*

Family support is considered an important environmental factor affecting differentiated instruction. In the survey, the top item in the teaching beliefs on inclusive education is Item A12 “All students can learn, given an appropriate educational environment” (M=4.80, S.D.=1.05). One S04 teacher explained,

*Perhaps it is the family that affects them and sometimes it's the attitude. It is complicated. For example, I am teaching Form One [Grade 7] this year and their family background is not very good. This affects their learning, not only Chinese subject but also other subjects.* (S04-Teacher B, 21 May 2014)

However, teachers realized that family support could be obtained through frequent communication with parents as well as through parental involvement in classrooms. This teacher shared her experience,

*For those weaker classes, we give more support to parents, we also have close contacts with them. Our parents also give support to us [teachers]. Parents come to our lessons and help as they are also resources. We find the outcomes not too far away from regular classes and our students don't have hard feelings there. (S01-Teacher B, 21 May 2014)*

Therefore, differentiated instruction should be given proper support in the classroom as an inter-related “network of mutuality” among different key players including parents to allow students to reap the best benefits of learning (Lawrence-Brown, 2004, p. 59).

## Conclusions and Implications

The present study attempts to explore teachers' teaching beliefs toward differentiated instruction. Teachers generally have positive attitudes toward differentiation. However, a teacher-centered approach is more dominant, which may imply the lack of full understanding of differentiated instruction by teachers. Teachers also face struggles toward differentiation because of high-stake examinations and inclusive education. The academic rationalist culture in the Hong Kong Chinese society may affect the realization of differentiated instruction at the cost of sacrificing students' needs (Forlin, 2007).

Hence, different aspects should be considered fully to achieve effective differentiated instruction. First, the rationale and practical considerations of how inclusive education can be integrated accurately with differentiated practice should be clarified. Obstacles, such as time and large class size, should be investigated fully while practicing inclusive education. Second, job-embedded professional development opportunities should be provided to teachers with careful professional-development planning. These opportunities should be incorporated with teachers' issues of concern, such as classroom management in differentiation to enable teachers to reflect, express concerns, and share differentiated teaching practices.

This study is limited because of the use of self-reported findings. Combining these data with class observation, professional development records, and journal entries can be useful. Another limitation is the selection of targeted participants. Different stakeholders (e.g., principals and students) can be invited to explore further how differentiated instruction is used at school and classroom levels. This study does not intend to generalize other schools or countries. However, this study intends to attain an in-depth understanding of teachers' perceptions of differentiated instruction in the Asian context.

Table 3. Frequency of teaching efficacy using differentiated instruction (N=54).

Items	Strongly disagree		Moderately disagree		Disagree slightly more than agree		Agree slightly more than disagree		Moderately agree		Strongly agree		No response	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
A1 I can assist some students to learn with the use of carefully prepared prompts.	0	0	4	7.4	4	7.4	19	35.2	23	42.6	4	7.4	0	0
A2 A student's comprehension of text will be dependent on activating prior knowledge.	1	1.9	2	3.7	3	5.6	20	37.0	25	46.3	3	5.6	0	0
A3 If I allow some students to present assignments in a variety of ways, I may be giving some students an unfair disadvantage.	2	3.7	12	22.2	13	24.1	14	25.9	10	18.5	2	3.7	1	1.9
A4 Students who have difficulty maintaining concentration and completing a task and therefore develop more effective routines.	0	0	3	5.6	5	9.3	13	24.1	22	40.7	11	20.4	0	0
A5 When I help some students make links and build on previous knowledge, I am encouraging success in learning.	0	0	3	5.6	1	1.9	15	27.8	27	50.0	8	14.8	0	0
A6 If I teach and visually display context specific vocabulary, students' writing will be enhanced.	0	0	2	3.7	2	3.7	15	27.8	27	50.0	8	14.8	0	0
A7 Prior to teaching a new skill, it is necessary to analyze a task and ascertain the knowledge and skills that are required.	1	1.9	2	3.7	1	1.9	13	24.1	26	48.1	11	20.4	0	0
A8 Effective classroom management improves teaching and learning.	0	0	1	1.9	2	3.7	8	14.8	21	38.9	21	38.9	1	1.9
A9 If I provide graphic organizers for students to record their work, it will lead to better understanding of material.	0	0	1	1.9	4	7.4	16	29.6	25	46.3	8	14.8	0	0
A10 Cultural diversity among students will lead to different interpretations of the same text.	0	0	1	1.9	4	7.4	26	48.1	18	33.3	5	9.3	0	0
A11 By posing different questions, I can test understanding at various levels.	0	0	2	3.7	1	1.9	11	20.4	28	51.9	12	22.2	0	0
A12 All students can learn, given an appropriate educational environment.	0	0	2	3.7	3	5.6	15	27.8	18	33.3	16	29.6	0	0
A13 All students can be successful in my class.	1	1.9	4	7.4	7	13.0	14	25.9	17	31.5	11	20.4	0	0
A14 I can ensure that all students experience success by adapting the curriculum.	1	1.9	5	9.3	6	11.1	16	29.6	20	37.0	6	11.1	0	0
A15 Students with learning difficulties hold back students who are not impaired.	1	1.9	10	18.5	10	18.5	22	40.7	6	11.1	5	9.3	0	0

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## Part Two

# Indigenous, ethnic and cultural perspectives on teaching

We are citizens in a global community and, as a consequence, educational organisations are more ethnically, culturally and linguistically diverse than ever before. The role of education is to nurture every student's potential and to create strong, culturally inclusive and responsive educational pathways. Diverse students achieve more success when education acknowledges, values and reflects their multiple identities, languages and cultures; when educational institutions, and other stakeholders (e.g., families) collaborate in genuinely reciprocal ways; and when education is tailored to take account of each student's distinctiveness.

Questions which challenged the authors in this sub-theme of *Teaching for tomorrow today* were: In what ways can educational institutions be responsive to the diverse needs of indigenous students and students from other culturally diverse communities? What supportive roles can families and other stakeholders play in raising students' achievement? How can schools more effectively partner with culturally diverse students, families and communities? How can diverse students be well-supported as they transition across key areas – for example from early childhood to primary or from compulsory to post-compulsory education?

## Ways to be a great educator: Learning from Confucius

*Xiduo Cao & David Turner*

Beijing Normal University

There has been a growing interest in the moral dimension of teaching, and what that implies for teacher education. In part this has been a reaction against a growing movement that sees teachers defined in terms of their competences, of what they can do, rather than what they are (i.e. moral agents) (Creemers, Kyriakides & Antoniou, 2013). In a review of articles in *Teaching and Teacher Education*, Bullough (2011) identifies 92 articles that deal with moral issues, of which 22 have ethical values as their central concern. In a similar review of the *Australian Journal of Teacher Education*, Boon (2011) speaks of an ethics boom, and argues that moral values are at the heart of the policy drive to produce better teachers, and that the quality of educational systems is seen, ultimately, to rest on the quality of the teachers. These two reviews of the literature on the place of ethical values in the preparation of teachers point to an international, and possibly growing, concern over the values that should underpin the teaching profession.

While some of the articles cited seek explicitly to relate the morality of education to Aristotelean views (e.g. Fallona, 2000), the views of Confucius, who addressed the moral concerns of the teacher and teaching directly, have largely been ignored. This chapter seeks to redress that situation, by presenting the views of Confucius in relation to teaching.

Confucius is one of the greatest philosophers and educators not only of China, but of the world. Confucianism is a system of humanist culture, a fundamental perspective on the conduct of life and of society, which is still a living force for the Chinese people, which shapes the national conduct of affairs. Through organizations like the Confucius Institutions and all kinds of cultural exchange programmes, Confucianism is extending its influence throughout the world.

One of the most important characteristics of Confucius is his scholarship, his love of learning

and achievement in education. In this sense, a study of Confucius' fundamental educational beliefs and thoughts will be of interest and value to people around the world, especially those who wish to reflect on the moral core of teaching and replace the paradigm of the technically proficient teacher in possession of certain technical capabilities with a more rounded view of the teacher as professional practitioner.

### To be a gentleman

The educational goal of Confucius is to become a gentleman. The term "gentleman" as Confucius conceived it, did not imply social position or rank, but rather indicated a heightened moral sensitivity, so that some scholars prefer to use an expression such as "superior man" or "princely man" rather than "gentleman". The "superior man (or woman)" is a person of sound moral principles, at the same time a person who loves learning, who is calm and perfectly at ease and is constantly careful of his or her own conduct, believing that by example he or she has a great influence over society in general. The "superior person" is perfectly at ease in his own station of life and has certain contempt for the mere luxuries of living. All the moral teachings of Confucius are rooted in this conception of the cultivated gentleman. (Lin, 2009)

Confucius said, "In his dealings with the world the gentleman is not invariably for or against anything. He is on the side of what is moral" (Analects, Book 4). "The gentleman is versed in what is moral. The lesser man is versed in what is profitable" (Analects, Book 4). "While the gentleman cherishes benign rule, the lesser man cherishes his native land. While the gentleman cherishes a respect for the law, the lesser man cherishes generous treatment" (Analects, Book 4). We see in these quotations a moral core of fairness, and a desire for laws which apply equally to all, which underpins the Confucian notion of morality.

Confucius said, "The gentleman is no vessel" (Analects, Book 2). A vessel is designed for a specific purpose, such as the storage of oil, or the transport of wine, and derives its shape from its specific purpose. A gentleman is not to be a specialist like this, but is to be able to function morally in any situation. A gentleman may be trusted in an important position with large discretionary powers, but is not to be given a nice little job. The lesser man may be satisfied with a nice little job, but is not to be put in an important position with great discretionary powers.

It is interesting to consider these prescriptions in the light of recent attempts to view teachers as vessels to convey specialist knowledge to pupils and students, and whose discretionary powers are to be circumscribed in systems of accountability. Such a conception of a teacher as a specialist is directly contrary to the ideas of Confucius, who thought that the teacher was to be given professional discretion at all times.

### To be benevolent, wise and brave

There are three merits that Confucius valued most: benevolence, wisdom and courage. He took them as the standards to examine whether a person is a moral. Confucius once said, "There are three things constantly on the lips of the gentleman none of which I have succeeded in following: A man of benevolence never worries; a man of wisdom is never in two minds; a man of courage is never afraid" (Analects, Book 14)

Benevolence is the most important merit. A disciple, asked Confucius about benevolence.

“Confucius said, ‘There are five things and whoever is capable of putting them into practice in the Empire is certainly benevolent.’ ‘May I ask what they are?’ ‘They are respectfulness, tolerance, trustworthiness in word, quickness and generosity. If a man is respectful he will not be treated with insolence. If he is tolerant he will win the multitude. If he is trustworthy in word his fellow men will entrust him with responsibility. If he is quick he will achieve results. If he is generous his fellow men will be willing to do his bidding.’” (Analects, Book 17)

Confucius believed a gentleman should always remain benevolent. He said, “The benevolent man is attracted to benevolence because he feels at home with it... The gentlemen never deserts benevolence, not even for as long as it takes to eat a meal. If he hurries and stumbles one may be sure that it is in benevolence that he does so”. (Analects, Book 4)

Being wise is almost as important as being benevolent. Wisdom relates to understanding other people: Confucius said, “Know your fellow man... Raise the straight and set them over the crooked. This can make the crooked straight”. (Analects, Book 6)

Confucius said, “It is not the failure of others to appreciate your abilities that should trouble you, but rather your failure to appreciate theirs”. (Analects, Book 1) In Confucius’ ideas, the most important wisdom is derived from knowledge of people, knowing their strengths and weaknesses, and raising benevolent people as an example to others.

A gentleman should also be brave. Confucius said, “Seeing what ought to be done, but yet to leave it undone, shows a lack of courage”. (Analects, Book 2) “To love courage without loving learning is liable to lead to insubordination”. (Analects, Book 17) Confucius believed that real bravery involves a proper combination of courage and wisdom.

### Enjoying learning and teaching

Confucius believed that learning is the most enjoyable thing to do in the world. The first sentence in the Analects is about the pleasure of learning: “Is it not a pleasure, having learned something, to try it out at due intervals? Is it not a joy to have like-minded friends come from afar? Is it not gentlemanly not to take offence when others fail to appreciate your abilities?” (Analects, Book 1).

Interests and emotions are the best teachers. Confucius said, “To be fond of something is better than merely to know it, and to find joy in it is better than merely to be fond of it” (Analects, Book 6). Throughout his life, Confucius enjoyed learning and was eager to learn. As a result he became a very knowledgeable person, and his wide-ranging knowledge was well known in his time. Confucius said, “In a hamlet of ten households, there are bound to be those who are my equal in doing their best for others and in being trustworthy in what they say, but they are unlikely to be as eager to learn as I am” (Analects, Book 5). “Quietly to store up knowledge in my mind, to learn without flagging, to teach without growing weary; for me there is nothing to these things” (Analects, Book 7).

For his disciples, Confucius always held up Yan Hui as an example of learning, since Yan was consistently eager to learn, and enjoyed learning. Confucius said, “How admirable Hui is! Living in a mean dwelling on a bowlful of rice and a ladleful of water is hardship that most men would find insupportable, but Hui does not allow this to affect his joy. How admirable Hui is!” (Analects, Book 6).

### A sense of mission and confidence

During Confucius' life, he met dangers and even fell into despair on occasion. But in the face of all difficulties and challenges, Confucius showed courage and confidence in front of his students and disciples, because he had a strong sense of mission to pass on the culture.

According to tradition, when Huan Tui, the Minister of War in the Song Dynasty, attempted to kill him, Confucius said, "Heaven is the author of all the virtue that is in me. What can Huan Tui do to me?" (Sima, 2009).

When Confucius met with danger in Kuang, he said, "With King Wen dead, is not culture (*wen*) invested here in me? If heaven intends culture to be destroyed, those who come after me will not be able to have any part of it. If heaven does not intend this culture to be destroyed, then what can the men of Kuang do to me?" (Sima, 2009).

Confucius' sense of mission as a teacher and educator was so strong, and so much a part of his identity, that he saw his mission to teach and to pass on culture as a justification for his continued existence, so that he could not be harmed unless it was the result of a fate that would silence his voice.

### Instruction without categories

Concerning the objects of education, Confucius gave instruction to anyone, whatever their social position, wealth, family origin, age, personality, or any other personal characteristic. Confucius said, "In instruction there is no grading into categories" (Analects, Book 15).

According to the historian Sima Qian, Confucius pursued the "eight no" principles in instruction and teaching: no discrimination between the noble and the humble, no discrimination between the rich and the poor, no discrimination between the wise and the stupid, no discrimination between the diligent and the lazy, no discrimination between the beneficial and the injurious, no discrimination between the old and the young, no discrimination among different nationalities, and no discrimination between the beautiful and the ugly (Sima, 2009).

As long as a person sincerely wished to study with Confucius, Confucius would take him as his disciple. Confucius said, "I have never denied instruction to anyone who, of his own accord, has given me so much as a bundle of dried meat as a present" (Analects, Book 7). This statement refers to a custom that was current at the time when Confucius lived, which was that when a student wanted to study with a teacher, the student would prepare a bundle of dried meat as a present when the teacher and prospective student first met. Confucius mentioned the dried meat to indicate and highlight the importance of sincerity, of which the gift was a symbol. In practice, however, many of Confucius' disciples came from extremely poor families.

In this way, Confucius became one of the greatest educators, with a large following of disciples. According to historical records, in his old age Confucius had more than three thousand disciples, and seventy-two of them became famous in their own right (Sima, 2009).

## Teaching different people differently

Confucius believed people were born with different levels of intelligence and different talents, so that people can be divided into different levels. Confucius said, “Those who are born with knowledge are the highest. Next come those who attain knowledge through study. Next again come those who turn to study after having been vexed by difficulties. The common people, insofar as they make no effort to study even after having been vexed by difficulties, are the lowest” (Analects, Book 16).

For different levels of people, the educational contents and methods should be different. Confucius said, “You can tell those who are above average about the best, but not those who are below average” (Analects, Book 6).

In addition to levels, teaching should be selected to accord with different personalities and individual situations. As the Analects record, one day Zi-lu asked, “Should one immediately put into practice what one has heard?” Confucius said, “As your father and elder brothers are still alive, you are hardly in a position immediately to put into practice what you have heard”. Ran You asked, “Should one immediately put into practice what one has heard?” Confucius said, “Yes. One should”. Gong-xi Hua said, “When Zi-lu asked whether one should immediately put into practice what one has heard, you pointed out that his father and elder brothers are still alive. Yet when Ran You asked whether one should immediately put into practice what one have heard, you answered that one should. I am puzzled. May I be enlightened?” Confucius said, “Ran You holds himself back. It is for this reason that I tried to urge him on. Zi-lu has the drive of two men. It is for this reason that I tried to hold him back” (Analects, Book 11).

## Tolerance and learning from mistakes

Confucius was a strict teacher; he always pointed out the faults of his disciples directly. He once commented on some of his favorite disciples, “Chai is stupid. Can is slow. Shi is one-sided. You is forthright” (Analects, Book 11).

However, he admitted that everyone, including himself, would inevitably make some mistakes. As long as one corrects his or her errors, a person could still remain good. Confucius said, “One cannot but give assent to exemplary words, but what is important is that one should correct oneself. One cannot but be pleased with tactful words, but what is important is that one should reform oneself. I can do nothing with the man who gives assent but does not correct himself or with he who is pleased with himself, but does not reform himself” (Analects, Book 9).

Although strict with his disciples, Confucius always remained confident of the abilities of young persons. Confucius said, “It is fitting that we should hold the young in awe. How do we know that the generations to come will not be the equal of the present?” (Analects, Book 9).

## Honesty and sincerity

Confucius believed one should be honest with others and with oneself. Only in this way, can a person gain true knowledge and attain one’s real value. Confucius said, “To say you know when you know, and to say you do not know when you do not; that is knowledge” (Analects, Book 2).

One day, Confucius said to his disciples, “Do you think I am secretive? There is nothing that I hide from you. There is nothing I do that I do not share with you” (Analects, Book 7).

Being sincere and trustworthy are very important. Confucius said, “I do not see how a man can be acceptable who is untrustworthy in word. When a pin is missing in the yoke-bar of a large cart or in the collar-bar of a small cart, how can the cart be expected to go?” (Analects, Book 2). “A man should insist on keeping his word and seeing his actions through to the end” (Analects, Book 13).

### Setting an example

Confucius said, “If one sets strict standards for oneself and makes allowances for others when making demands on them, one will stay clear of ill will” (Analects, Book 15). “If a man is correct in his own person, then there will be obedience without orders being given; but if he is not correct in his own person, there will not be obedience even though orders are given” (Analects, Book 13). “What the gentleman seeks, he seeks within himself; what the lesser man seeks, he seeks in others” (Analects, Book 15).

In the opinion of his disciples, Confucius was a perfect example of knowledge, behaviour and morality. They thought their master cordial yet stern, awe-inspiring yet not fierce, and respectful yet at ease (Analects, Book 7).

Zi-gong, one of Confucius’ favorite disciples said, “In other cases, men of excellence are like hills which one can climb over. The master is like the sun and the moon which one has no way of climbing over” (Analects, Book 19).

### Love students more than sons

According to historical records, Confucius had numerous disciples but only one son, who was called Bo-yu. Confucius spent most of his time with his students and disciples, but very little time with his own son, and Bo-yu died before Confucius. Through his teaching, Confucius seems not to have tried to give any specific advantage to his own son.

Through love, Confucius built an extraordinarily strong relationship with his students and disciples. They were not relatives, but they had stronger emotional ties than relatives. When Yan Hui who was Confucius’ most favorite disciple died, Confucius said, “Alas! Heaven has forsaken me! Heaven has forsaken me!” (Analects, Book 11).

For most of Confucius’ life, many of his closest students and disciples followed him everywhere, even in times of hunger and danger. They deeply respected, believed in, and loved Confucius. After Confucius’ death, all of his students and disciples were in mourning; Zi-gong who was one of Confucius’ closest disciples lived close to and took care of Confucius’ tomb for six years.

Today is far away from Confucius’ time, so many things, including education, have changed completely. Still Confucius, one of the greatest educators of the world, can inspire today’s teachers through his words, behaviour and stories. Most importantly, he gives a rounded picture of a teacher as a moral being who lives in accordance with his or her principles, rather than a person who is technically skilled in transmitting skills.

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## Dual process of assessment: The field experience of pre-service teachers in a rural school in China

*Jiang Heng*

Nanyang Technological University

In this study, I intend to illustrate what classroom assessment practices may look like in the context of a rural school in China, and how learning about assessment served as a key teaching task in the learning-to-teach process of a group of pre-service teachers in a disadvantaged school setting. Specifically, I consider the following questions: First, what are the assessment practices that the pre-service teachers learned while teaching in a rural school with low social economic status (SES)? Second, how do assessment and related teaching practices shape and being shaped by the participants' learn-to-teach experiences? I will address these questions in the contexts of assessment in China, the dinggang internship initiated by Han University, and the rural school where the participants' practicum experiences took place.

### Contexts

Under the “New Curriculum (xin ke cheng, 新课程) Reform” adopted by Chinese schools in 2001, the examination system continues to serve as the key gatekeeper for educational mobility in China (Hannum, An, & Cherg, 2011) although it has become more localized and taken on diverse formats. Students must take a high-school entrance examination (zhong kao, 中考) after nine years of compulsory education. They must meet minimum cut-off scores on this entrance examination in order to enter general or vocational high schools. At the end of three years, the high school graduates have to participate in the College Entrance Examinations and compete for the opportunities for the higher education.

The most obvious characteristic of Chinese standardized exams is that they are largely curriculum-based. What is taught in the curriculum is what is tested in the standardized teaching. The annual test outline published by the educational bureaus, both locally and nationally for different levels of tests (especially the High School and College Entrance

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Examinations) changes every year. The educational bureau at the provincial level coordinates teachers and educational researchers to develop the standardized tests based on the outlines. A close reading of the outlines is a key task for teachers so that they could have a map of the connected key concepts to be focused in teaching. The teachers often adapted standardized test items for students to read, reread, practice on, and test their understanding of the key concepts involved in solving the questions in the test. In this study, dinggang internship initiated by the Han University provided an interesting case for us to explore how the assessment is used as a tool by the pre-service teachers as they learn to teach disadvantaged students.

Han University (HU) is a distinguished teacher training university located in a metropolitan area of northeast China. In 2006, Han University launched a special internship project called “dinggang” (dinggang jihua, 顶岗计划), which sends juniors, after they complete two years of teacher education courses, to conduct their student teaching in underdeveloped rural areas for at least three months. “Ding” means “replace” and “gang” means “position.” In the “dinggang” project, Han University collaborates with nearby rural schools in the areas of low socioeconomic status (SES) and sends interns to these schools. These interns replace a few schoolteachers and engage fully in all teacher-related functions of the school, with the assistance of mentors in the local school and the supervisors from HU (Dai & Cheng, 2007). Those schoolteachers for whom the HU interns substitute have the opportunity to attend the professional development programs jointly sponsored by HU and local educational bureaus.

The rural school in this study, Green Middle School (GMS), is one of the collaborate schools that Han University worked with to train the pre-service teachers. Established in 1986, GMS served for over 500 students in the 7th through the 9th grade. It runs a tracking system that divide students into advanced classes (shiyaban) and general classes (putongban). High achievers on the school’s entrance examination go into the shiyaban (classes 1 and 2), while those with lower-than-average scores are assigned to the putongban (classes 3, 4, and 5). In this underfunded rural school, the teachers cannot afford to buy many commercially prepared curriculum materials and test preparation books. As delineated later, for the participant pre-service teachers, tests and the related teaching activities were important resources and tools for teaching at GMS.

## Research background

Through a sociocultural perspective, assessment can be defined, as social interactions around interpreting student activities that take place whenever:

...one person, in some kind of interaction, direct or indirect, with another, is conscious of obtaining and interpreting information about the knowledge and understanding, or the abilities and attitudes of that other person (Rowntree, 1987, p.4, cited in Klenowski & Wyatt-Smith, 2014, p.30).

Accordingly, assessment does not simply refer to the practices of using testing papers to find out the students’ learning results, but also involves the values to interpret these results. This definition of assessment lays the foundation for the stories unfolded in this study as I explore how the participants from relatively well-off family background learned to teach via classroom assessments in a low-income rural school community and how their engrained perceptions of the students interacted with their assessment-oriented practicum experiences.

In this study, I am especially interested in the tacit values behind the assessment practices when the pre-service learn to teach their rural students.

### *Classroom assessment practices and learning to teach*

Recent research on assessment emphasized a shift away from using tests to judge students' learning towards the use of assessments to collect data that will help teachers know what students are thinking (Boudett, City, & Murnane, 2005; Young & Kim, 2010). For instance, Wiliam et al. (2004) have demonstrated that substantial learning gains are possible when teachers use classroom assessment practices to inform teaching and student learning. Implicit in this discussion is an expanded interest in using assessment for teaching and learning to teach. Some critiques express concern that such emphasis on assessment may narrow the curriculum, exclude topics not tested, reduce learning to memorization, and cause teachers to devote too much time to test preparation (Yeh, 2005). The criticisms are valid, as practitioners may misuse the assessments or become enslaved by a mechanical use of them. However, assessment, when used as a tool in combination with corrective instruction, can serve as a reflective activity that informs teaching and learning. Achieving this goal requires that assessment becomes part of the classroom instruction, and that the content being assessed is not isolated from what is taught (Care & Griffin, 2009; Fisher & Frey, 2007).

Such classroom assessment activities may provide opportunities for the pre-service teachers to observe and learn from, when they began to see more specifically what is involved in teaching and started to learn how to teach according to what their students know and need to know. In this sense, they may be able to travel from the world of teacher education theories and academic knowledge to the actual world of teaching (Nolen et al., 2011). In the present case, the assessment practices also help pre-service teachers work with the boundary between urban and rural settings. Such a boundary is not only objectified social phenomena, such as income and social status, but also symbolic (Lamont, 1992; 2000) which are attached to cultural and moral meanings.

### *Symbolic boundary work as criteria for evaluation*

My views on this topic have been influenced by the theory of boundary work (Lamont, 2000; Lamont, 2001; Lamont & Molnar, 2002). According to this theory, symbolic boundaries are evaluative criteria by which people assess and classify objects, people, and practices (Lamont, 2001). They are tools for individuals and groups to make symbolic distinctions between themselves and "others" in their daily lives (Lamont & Molnar, 2002). For instance, in her study of the effect of merit promotion policies in Chicago, Anagnostopoulos (2006) used boundary work theory to illuminate the moral boundary, i.e. symbolic boundary, that the teachers drew between "deserving" students and those deemed "undeserving". Based on this symbolic moral boundary, the teachers enacted different classroom practices that limited the learning opportunities for demoted students.

The concept of *boundary work* is particularly relevant to this study, because it provides a lens for examining how the participants use symbolic criteria to assess and categorize people from different social backgrounds and how such evaluative criteria interact with the classroom assessment practices as the participants learned to teach in a rural school in China.

## Methodology

In order to understand their learn-to-teach experiences, I shadowed a group of selected pre-service teachers throughout their four-month *dinggang* student teaching period. One rural school in an economically underdeveloped county, Green Middle School (GMS), randomly selected, consented to take part in this study. All eight interns assigned to GMS agreed to participate (*Table 1*).

*Table 1.* Participants in the study

Name	Subject Area	Family Background	Gender
Chen Leng	Chemistry	Urban areas	Male
Feng Lin	Chinese		
Han Ming	Chemistry		
Hao Jing	Chinese		
Jin Lei	Math		
Li Min	Math	Economically developed rural areas	Female
Wang Mei	Fine arts		
Zhang Fang	English		

The main data sources for this study included participant observations, three rounds of in-depth individual interviews, and analysing written documents. All the data were organized in the N-Vivo 9 for coding, developing matrix, and interpretation (Maxwell, 2005). The code categories emerged after multiple readings of the transcripts were completed. The patterns were identified through constant comparison (Glaser & Strauss, 2009) and comparing with the research literature.

### Findings: Dual Process of Assessment—Technical Act of Assessment and Symbolic Act of Assessment

The participant pre-service teachers experienced a dual process of assessment: *the technical act of assessment* and *the symbolic act of assessment*. The *technical act of assessment* refers to the procedural assessment practices that the pre-service teachers acquired via observing and co-teaching with their mentor teachers. The symbolic act of assessment is the tacit judgment of the students based on the teachers' assumptions on teaching and learning in a rural school.

#### *Technical Act of Assessment*

Researchers find that there are three purposes of assessment in education: first, assessment for improving teaching and learning; second, assessment for making schools and teachers accountable for their effectiveness (school accountability); and third, assessment for making students accountable for their learning (student accountability) (Brown et. al., 2011). This is more of an elaboration of the distinction of summative assessment, which makes judgments on student learning, and formative assessment, which aims at providing intermittent feedback to aid learning (Scriven, 1967; Wiliam & Black, 2004). During my field work, it is found that the

distinction between summative and formative assessment may be unnecessary for the participants. The student teachers learned to analyze the standardized high-stake test items from their mentor teachers, had students practice these items, and provided formative feedback to students. It corresponds to the argument by Taras (2007) that “formative” assessment in many ways follows a summative assessment activity because “formative” information is only possible after making some evaluative judgment regarding students’ knowledge or skills.

Most GMS teachers, and the participant pre-service teachers following suit, were frequently involved in a cycle of classroom assessment practices that consisted of four connected components. First, they studied the standardized test papers and the textbooks, which gave them a sense of what to focus on and how to make connections between the textbooks and the tests. Second, they developed quizzes and weekly tests for their students, which were adopted and modified from the items on the standardized tests studied. They chose the test items that they considered most relevant to what they were teaching at the moment. Third, they administered the test, reviewed the students’ test outcomes, and tried to identify the students’ misconceptions. Fourth, they provided feedback during the *test exercise lessons* (*xitike*, 习题课), when the teachers explained the test items (*chuan jiang*, 串讲) with possible solutions, and alerted students to possible misconceptions. The understanding obtained from reviewing the test results and giving feedback to students was turned into notes on their collection of the test items, which were in turn boiled down into knowledge of how to use each test item to address certain misconceptions among the students.

These technical acts of assessment above did not stand alone as objective process of evaluation. They are intricately intertwined with symbolic acts of assessment, as elaborated below.

### *Symbolic Act of Assessment*

By identifying the symbolic boundaries that these interns marked among their students, I draw attention to the *intellectual*, *cultural*, and *moral boundaries* that the interns constructed and acquired to perceive their rural students, which guided their classroom assessment activities and teaching at large.

### Social Class Differences and Symbolic Boundaries

In GMS, the tracking system of *putongban* (普通班, general education classes) and the *shiyiban* (实验班, experimental or advanced classes) laid a natural setting for me to examine how pre-service teachers evaluate different groups of rural students by identifying who “are more like us”. While learning to teach, the intern participants had good wills and meant to adapt teaching to their students. However, without careful reflection or guidance, interns often relied on unexamined symbolic boundaries —*intellectual*, *cultural*, and *moral boundaries*--to evaluate their students.

*Intellectual boundaries* are drawn on the basis of cognitive quality, such as competence to analyse and solve learning problems, and having a solid knowledge foundation. For instance, as the vignette 1 shown below, Li Min stressed that *qian li* (潜力) — a latent competence of analytical thoughts in using knowledge points to solve problems—was an important criterion to identify whether students were worth teachers’ extra time and attention.

## Vignette 1:

Chen Xiaofei, a shy boy in grey, walked into Li Min's office. He handed in a piece of paper with a few problem-solving procedures and asked for extra exercises. Li reached for a reference book in her desk drawer, *Preparing for the High School Entrance Exam in Math*, scanned it, checked two problems, and lent it to Chen. She turned to me, "He is one of my *seed* students. He has the *qian li* to achieve very well." She said that she did not have much time and energy to pay attention to every student in this class of forty. Therefore, she had to adapt her teaching to yield the most desirable outcomes for the students that were most likely to succeed. She said, "Some students cannot learn. They work really hard, but they just do not get it. You cannot ask too much from them. I usually give them relatively simple work for them to master the basic knowledge points. Student with *qian li* are different. They may not always get the right answer, but they have a good brain. You can tell that when you look at the type of 'exploratory problems' you assigned to them. They use right procedures to think through the problem even though they may not have the right answer." (Field notes taken in Li Min's office and interview with Li afterwards)

The exercises Li Min adopted from the test papers and the test preparation books were carefully categorized into those given to students with *qian li* and those without. It seemed that the assessment activities Li Min took part in were imprinted with her evaluation of the students' intellectual potentials even before they took examinations. In addition to the intellectual boundaries, the moral boundaries are also important for the teachers to appropriate when evaluating the students.

*Moral boundaries* are drawn based on such qualities as diligence, steadiness, honesty, discipline, and ambition. Diligence (*qin fen*, 勤奋) is the key word that permeated most moral characteristics the interns described, as shown in the vignette 2 below.

## Vignette 2:

Sitting beside a high stack of exam papers, Zhang Fang looked frustrated about what some of her *putongban* students had presented in their latest school exam. She said: "They simply do not work. You can tell that they did not spend time memorizing the spelling or the conventions. These students are not stupid. If you work hard, learning English should not be difficult. It is certainly more difficult for rural students than it is for city kids. Rural children do not have access to native English speakers or even a recorder that can show how to pronounce the words correctly. But this does not hinder them from achieving high scores in English exams.... *Shiyanban* students tried to understand why we should put down this answer. These *putongban* students do not even bother to ask why. And the best way for them to learn and achieve better is just to remember the answers." (Interview with Zhang Fang)

Being frustrated by how her *putongban* students perform, she asked her students to memorize the correct answers to the test items by copying and drilling. The pre-service

teachers' perceptions of the students were not only made use of intellectual and moral boundaries, they are also influenced by the cultural boundaries as illustrated below.

*Cultural boundaries* are drawn on the basis of manners, language, and appearances. For example, Chen Leng in vignette 3, describing his own classmates in middle school as more sophisticated and confident, drew cultural boundaries. Language, postures, and dressings, were also used as labels to signal differences.

#### Vignette 3:

Looking downstairs, Chen Leng pointed to several students walking in the playground. "I did not wear my glasses today. But I can tell those are my students in *putongban*. They have this sloppy way of walking. My *shiyaban* students do not walk in this way... They are more upright, steady. They appear totally different. ... *Putongban* students ... not only have a more solid knowledge foundation and more learning resources, but also a wide horizon to ensure a sophisticated character. (Interview with Chen Leng)

When teaching his test exercise lessons, Chen Leng gave his *shiyaban* students more instructions on how to make connections among the knowledge points as these "students are quick to understand the basics and give more responses to the teacher" so that he was "confident—and comfortable—enough to give them more instruction on how to explore using the experiments to test hypotheses". In contrast, he only asked his *putongbang* students to start from the basic understanding of individual concepts.

The vignettes above are typical instances when most participants described their perceptions of the GMS students. The pre-service teachers learned to teach different groups of students based on what they thought about these children. For instance, they tended to give extra exercises to the students with *qianli*, spend more time to explain the mistaken test items with hardworking students, and give more chances to "responsive" students to share their ideas in class. Intellectual boundaries ("*qianli*"), cultural boundaries ("giving more responses to teachers"), and moral boundaries ("They simply do not work") were manifested in their understanding of different groups of students and influenced what and how they develop their assessment related instructions. They thought that their teaching met different needs and current levels of the students in *shiyaban* and *putongban*. However, the "levels of the students" were deemed as if they were stagnant and unchangeable when used as the evaluative criteria to direct the instructions. The result of using the stagnant symbolic boundaries to mark their instruction was that the favoured students had better opportunities to learn and excel in the tests which would eventually lead them into key high schools in the city. By contrast, those students categorized on the less favoured side of the symbolic boundaries had fewer opportunities compared to their counterparts in *shiyaban*.

#### Discussion and conclusion

This study suggested that the teaching task of classroom assessment was not only technical steps for the participants, but also symbolic norms and beliefs. The existing norms and beliefs about teaching shape and limit teacher learning experiences (Jiang, 2012; Putnam & Borko, 2000). Further complexity is added to the *dinggang* practicum as the pre-service teachers serve

in a rural school attended primarily by children of low-income families. Simply providing access to learning the assessment practices, in itself, is unlikely to help pre-service teachers understand how to work with students from rural backgrounds. Most pre-service teachers in China are trained in tertiary-level education institutions, most of which are located in cities. And many of them are from relatively well-off families in the cities or economically developed towns. In other words, their backgrounds are very different from those of the pupils whom they teach at the rural school. Their perceptions of what school life should be, how a student should look, and how they should behave in the classroom are probably pre-set in their own relatively well-off upbringings. When these pre-service teachers interact with local schoolteachers and students, they seem to experience culture shock. In spite of this culture shock, they tend to assume that the way in which they studied in their own schools should work for their rural school students. Henceforth came in the tacit *symbolic act of assessment* for them to justify their decision making in working with their rural school students. These pre-service teachers have been successful students who passed many exams and went on to college. How their knowledge is mapped into and connected to the curriculum and how to employ pedagogical strategies to help pupils extend their understandings are key questions that the pre-service teachers have to deal with. It requires a process of curriculum making based on a reflection of their own life histories and an active relationship with their pupils (Craig, 2010). Thus, they have to situate their understanding in a close observation of the social meanings that the rural students attach to learning, rather than confining their thinking to their own prior school experiences in a different social context.

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## **An exploratory study on nurturing students' cultural awareness in a Hong Kong primary school through learning Chinese calligraphy with a spiritual perspective**

*Karen Leung*

Diocesan Boys' School Primary Division, Hong Kong

Chinese calligraphy training has a unique function in education. It is believed practicing calligraphy helps students to develop self-discipline. Yet, one challenge for Hong Kong teachers in teaching calligraphy is insufficient class time since it is only regarded as a minor component (5 percent of the term mark) in the Chinese curriculum - one of the Eight Key Learning Areas (ELA). Thus, teaching Chinese calligraphy is often limited to instructing students to trace words from copybooks. As primary school teachers, we would like not only to challenge students to acquire the basic techniques of writing calligraphy but also nurture their cultural awareness and help them to develop self-discipline. Therefore, an experiential teaching approach was adopted in an Electives course from December 2014 to March 2015 to teach students calligraphy with a spiritual perspective.

This study aims at improving students' interest and knowledge in Chinese calligraphy and explores whether this approach helps to increase students' temperament as a spiritual perspective was adopted. Our students are generally willing to learn but not very enthusiastic towards tradition art forms due to the lack of exposure. Their attention span is quite short. Therefore, this experiential practice aims to seek whether practicing Chinese calligraphy call help students develop their temperament such as patience. Class observation, group interviews and journals were employed to investigate students' learning processes.

### Literature review

Wong (2005) stated meditation can be achieved through the performance of a skillful

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activity. It is a pity that calligraphy is given a very low priority in Hong Kong schools so the art is being lost to pupils and teachers alike. It is unfortunate that hitherto the replacement of menial activities by technology often seems to rob the resultant activity of the ability to involve and express one's whole being and promote holistic rationality to different levels of one's engagements (Wong 2005). Pike (2005) also suggested practicing calligraphy is a kind of pedagogy that promotes active reading and nurtures aesthetic response and a love for the art in this age of technology. In this study, we used Biblical narratives to explain the words that the students were expected to write in the lesson. Those words were taken from the Bible verses. Using narratives could help them to understand why such words were chosen. Theorists such as Bruner (1986) have suggested there are two modes of thought. One mode of thought is narrative and "narrative is built upon concern for the human condition." Trousdale (2005) quotes from Bruner that narratives are in particular powerful to children as it does not seek to prove a proposition through an array of data or scientific facts; its power is an interior persuasiveness. Jones (1960) suggested that aesthetic and spiritual aspects could be given to children in stories and lessons as children unconsciously seek, and should find spiritual direction. According to Jones (1960), Bible stories and verses provided students spiritual direction needed by them. Jones further elaborated by stating in Bible teaching, an authentic text is recommended and a true historical framework (Jones 1960). This was the reason why Bible stories were chosen to be taught in each lesson before the actual teaching of calligraphy in this course. Teaching materials in this course were not too complex but at the same time authentic for them as students were only required to learn 8 words in each lesson. Lu (2014) who researched on calligraphy education in Lintong No.1 Railway Elementary School, which is famous for their teaching of Chinese calligraphy and has sent students to Japan to participate in calligraphy exchange activities, has also followed the rationale and philosophy of preparing a syllabus easy for children to follow and focusing on one topic only in each course (Li 2004).

Tacey (2005) believed the spirit of tradition is only "conserved" by making it relevant to the present. He argues there is a mystical dimension of tradition: "it is not about repetition, but recreation." It is hoped that through participating this calligraphy course, students will have the sense of tradition internalized and apply these values when they make ethical decisions in their daily lives.

### Assumptions

Students will have a deeper understanding of the calligraphy strokes, learn the basic structure of the characters through practice and will develop a love for this traditional art and teaching Chinese calligraphy with a spiritual perspective does not only enable them understand the Bible's moral standard but will help to mold their characters and personalities.

### Curriculum organization

A calligraphy booklet written by a renowned calligrapher Mr. Chan Yam was used as the textbook for this course. To ensure professional teaching quality, the school invited an outsourced calligraphy teacher, Ms. Betty Chan to teach students calligraphy one stroke per lesson while the school teacher explained the stories behind the words chosen. The school made

such an arrangement since it was not possible to seek a teacher with a strong calligraphy background and with a sound knowledge of Bible stories. Mr. Chan Yam's booklet was chosen as the syllabus as a different stroke is integrated into the words chosen for each lesson. The words were carefully chosen from different Bible verses of the New Testament. Theoretically, students should be able to write all words in calligraphy after attending this course as all basic strokes were covered in the seven session course (Figure 1). Apart from teaching, Mr. Chan Yung, a renowned Chinese calligrapher who wrote the copybooks that the students used in class conducted a master class in the last lesson. It gave students an opportunity to ask questions to an expert and express their views. The arrangement of the lessons is listed below in Table 1:

*Table 1.* Arrangement of lessons (Note: HW= homework; WS= worksheet)

Dates	Activities/ Spiritual Perspective	Lesson / Questionnaire / Interview
5 December	<ul style="list-style-type: none"> <li>- Introducing stationery and the posture needed for practicing Chinese calligraphy</li> <li>- Appropriate ways to handle the Chinese brush</li> <li>- Introducing the center tip (the very basic brushwork technique) and the hidden tip</li> <li>- HW: Journal 1</li> </ul>	1. Nil
12 December	<ul style="list-style-type: none"> <li>- Story of forgiveness</li> <li>- <i>The Valentines Day Story for Kids</i></li> <li>- Introducing the hook stroke</li> <li>- HW: Journal 2</li> </ul>	2. Nil
9 January	<ul style="list-style-type: none"> <li>- Introducing the dot stroke</li> <li>- Discussion on the meaning of honouring one's parents</li> <li>- Feedback on journal (Answering questions students asked in their submitted journals)</li> <li>- HW: Journal 3</li> </ul>	3. questionnaire 1 formal interview
16 January	<ul style="list-style-type: none"> <li>- Introducing the perpendicular hook stroke</li> <li>- A story of selfishness and discussion of the story</li> <li>- HW: Journal 4</li> <li>- WS 1</li> </ul>	4. questionnaire 2
30 January	<ul style="list-style-type: none"> <li>- Writing practice</li> <li>- Introducing the curved hook stroke</li> <li>- Introducing the signboards</li> <li>- Students explained how they can apply the words they wrote in their daily lives.</li> <li>- HW: Journal 5</li> <li>- WS 2</li> </ul>	5. questionnaire 3 formal interview
6 February	<ul style="list-style-type: none"> <li>- -Introducing the crooked hook stroke</li> <li>- A New Year Resolution</li> <li>- HW: Journal 6</li> <li>- WS 3</li> </ul>	6
6 March	<ul style="list-style-type: none"> <li>- Master Class</li> <li>- HW: Journal 7</li> </ul>	7

## Methodology

The research was conducted from December 2014 to March 2015. The completion of the research aims to answer the following questions:

1. To what extent do students increase their knowledge and interest in the art of Chinese calligraphy?
2. To what extent can the practice of Chinese calligraphy nurture students' temperament?

Observation (through the use of giving out students' worksheets and keeping of teacher's notes) and interviews were used to collect data.

### *Participants*

In this study, ten students from classes in Grades 4-6 with no background knowledge of Chinese calligraphy chose to participate the course voluntarily. The course was held 7 times, once a week, each with duration of 50 minutes. With the assumption questions in mind, an intervention of reducing the class size to 10 instead of the normal 25 students in our school's Elective curriculum was used. This intervention ensured teachers provided timely assistance to students. In addition, assessments were not conducted after this course to allow students to attend this course joyously thus releasing them from any psychological pressure.

### *Data collection*

To find out whether students have increased their knowledge and interest in Chinese calligraphy and its influence on their temperament, the following methods were used to collect data:

#### Reflective journals

Students were required to submit an 80-word journal after each lesson to discuss about what they have learnt. Journals were particularly important for teachers to understand our students' psychological journey. To ensure students could express themselves freely, no constraints were given to the length and content of the journals. It encouraged us a lot as students gave us insightful feedback, which helped us to adjust the focus of our teaching and understand their learning process better.

#### Observation

Worksheets were distributed after Lesson 3 as the boys later expressed difficulty in expressing their feelings and revealing their internal world. Therefore, worksheets were later distributed to help them to assist students to express themselves. The worksheets comprised three simple guiding questions which provided a starting point for boys to reflect on their own learning of calligraphy.

Three questionnaires were given after Lesson 3 to 5 to assist students to express their feelings. These questionnaires serve the purpose to investigate whether the values taught in the Bible stories have evolved into a personal experience. For example, one of the questions in questionnaire 1 aims to investigate whether students have tried to apply the principle of forgiveness to a person who has wronged him. An answer that the teacher received from the question include:

*I will try to stay away from my sister. I really feel angry when she shouted at my ear.*

The response indicated the student's willingness to change their behavior in negative circumstances – which is an indication of an improvement in their temperament.

#### Interviews

Four interviews were conducted during school recesses. Two of them were informal interviews with four questions. These interviews conducted after the second and fourth lesson aimed at checking whether students understood the learning materials thoroughly. Whilst two formal interviews of three students were held after Lesson 3 and 5 to investigate more in-depth changes in their attitude if there were any.

#### Findings and discussions

##### *Increasing knowledge of Chinese calligraphy*

Journals reflected students' increased knowledge of practicing Chinese calligraphy. Some comments indicated their increase of knowledge towards using calligraphy techniques. Others included an increase in knowledge of famous Chinese calligraphers. Below are some of the comments they have written while practicing calligraphy.

*Student: I realized we need a mat when we practice Chinese calligraphy, it's to ensure the ink will not drain ... (comment on details students have to pay attention to when writing) I will remember to return the stroke (wei fung) in order to write well ... (indicating an awareness of using the correct stroke).*

Students also showed a desire to seek additional information to what was instructed in class. For example in Lesson 4 when some pictures of signboards written in Chinese calligraphy were shown to students, one student asked the question:

*There were two words in a square that were always next to the signboard of Beijing Tong Ren Tong (a Chinese pharmacy in Hong Kong) down there on the slope of the hill of our school. What does it mean?*

The question was actually on writing seals – stamps which Chinese calligraphers used as a signature for their work. Moreover, the seal was of a very famous Qing dynasty calligrapher – Qi Gong (the cousin of the last Chinese Emperor Puyi). His question eventually led to a 15-minute class discussion of famous Chinese calligraphers. As a result of this discussion, the students increased their knowledge in Chinese calligraphy.

##### *Increased sense of responsibility towards learning*

Students showed responsibility towards their learning when more students remembered to bring the stationery needed in class. They were given a special set of stationery including the writing brush, the copybook and the bottle of Chinese ink in their first lesson. Yet, 3 out of the 6 students claimed to have forgotten to bring their stationery in Lesson 2. (See Table 2)

*Table 2.* Number of students who remembered to bring stationery in each lesson

	Lesson						
	1	2	3	4	5	6	7
Number of students who remembered to bring their stationery	6	2	2	3	2	5	5

When asked why they had forgotten to bring the stationery, they gave reasons below:

*Student A: I forgot to put it in my schoolbag. I am not used to do so.*

*Student B: Oh, I don't know why I forgot. I am just sorry.*

However, only one student had forgotten to do so by the last lesson. In the second interview, they were asked why they remembered to bring their stationery:

*Student: I need to bring everything so that I can write properly.*

### *Motivating students' learning*

Class observation reflected students were motivated in practicing Chinese calligraphy. Students showed attentiveness in class and practiced the strokes with focus. All students sought assistance from teachers for more than once if they came across difficulties when practicing the strokes. Teachers could sense that students had a strong desire to learn as they were not willing to stop writing the words after the class bell had gone at the end of the lesson. This behaviour indicates they had a strong motivation to learn to master the traditional art. As a result of their attentiveness, all basic calligraphy strokes were taught despite the tight teaching schedule. School questionnaires were given to students at the end of each Elective course. It can be confirmed the students enjoyed the course and they believed they had learned a lot about Chinese calligraphy. They gave 4.4 marks out of 5 marks in the questionnaire distributed by the school on a question regarding enjoyment and 4.5 marks on the question which asked them whether they have learned a lot in the course. Interview results were consistent with the teacher researcher's observation. About 80 percent of the students indicated they were inspired by the content taught in the course.

Data analysis also revealed that both teacher-student communication and praise had greatly motivated students to learn Chinese calligraphy.

#### *Teacher-student communication*

Teacher-student communication is important to maintain students' motivation to learn. Students were asked to submit journals after each lesson. Teachers discovered insightful comments from the submitted journals and discussed their comments with the class. This method was used not only as a way to maintain students' learning motivation as their efforts were acknowledged in class but teachers also made use of this opportunity to refine teaching strategies. For example, Student A wrote a comment in his journal and expressed his difficulty in writing the words:

*Student A: I wanted to learn Chinese calligraphy but the strokes the teacher taught were hard to grasp. I started to dislike it (calligraphy). What should I do?*

Aware of his frustration, the Chinese calligraphy teacher and the teacher researcher held a debriefing after the second lesson to discuss ways to help students. We decided to recapture and demonstrate to our students the strokes they had learnt in the previous lesson. In the second journal, he thanked us for addressing his issue.

*Student A: I am surprised the teacher explained everything again today. Thank you. Ms. Chan (the calligraphy teacher) praised me today. I am very happy. I will try again.*

The journal entry suggested the student benefitted greatly from the study as students were able to express their feelings and ask questions in the reflective process. As a result of the students' increased confidence and sense of security, they felt heard by teachers. They were more likely to succeed in writing calligraphy well as they showed perseverance. The student's third journal indicated a change in his attitude towards his writing in which he wrote:

*Student A: I think this course has improved my standard of calligraphy. The course taught me I have to write slowly and focus when doing so.*

Through students' continuous practice, they were willing to display more patience in practicing this art as they felt encouraged. It is important for the students as three of the six students considered themselves as low achievers in the interview.

#### Praise in students' learning

Praise was discovered in this study to be a strong motivator for students to learn despite their busy learning schedule. In this course, calligraphy writing exercises were assigned as homework after every lesson. Only two out of the six students submitted homework and only two students submitted their journals and calligraphy exercises on time after the first lesson. However, as we can see from the table, the number of students who have forgotten to submit homework has been reduced drastically with the intervention of praise. (See Table 3)

*Table 3.* Number of students who forgot to submit their journals and homework

	Lesson						
	1	2	3	4	5	6	7
Number of students who forgot journals	4	3	2	2	1	1	1
Number of students who forgot homework	4	4	3	2	1	1	1

The teacher researcher decided to investigate their reasons for not being able to do so in her first interview after Lesson 2:

*Interviewer: Why do you find it difficult to finish the calligraphy writing exercises?*

*Student A: I am busy all weekend.*

*Student B: I did not have enough time for my regular homework and studying, and ... of course not this.*

*Interviewer: What do you mean by "this"?*

*Student B: Electives.*

*Interviewer: Do you mean it is not regular homework?*

*Student C: But I like it without pressure*

*Interviewer: So what you mean is, if it's regular homework, you would all hand it in?*

The students all nodded their heads to this question to indicate a positive answer to this question. Students understand it is their responsibility to submit their homework. With a busy schedule, they would prioritize their tasks according to the level of importance. Aware of their difficulty, teachers changed the teaching strategy by intentionally provided positive reinforcement to encourage students to submit these exercises by praising the students who submitted their work and exhibiting work submitted on the blackboard with magnets in Lesson 3. In the second interview after Lesson 5, students were also asked the same question:

*Interviewer: I could see that you have all handed in homework, both journals and practice exercises.*

*Student D: I feel I have improved in writing, so I try to do some work (writing practice)*

*Interviewer: Are you less busy now so you can find time to do homework?*

*Student E: I try to work faster, I can do both.*

*Student F: Mum is very pleased when she saw me writing (calligraphy). She said my writing has improved*

*Interviewer: Why is she happy?*

*Student F: She says it is good to learn traditional stuff.*

*Interviewer: But, do you like it?*

*Student F: Yes, I like to do something attentively (with focus).*

*Interviewer: Can you always do this?*

*Student F: Sometimes ...*

Students' attitude towards submitting homework changed with their change in perception of Chinese calligraphy. Their reluctance to practice was related to their confidence of whether the art was manageable. Student F's response in the interview also indicates parental support and recognition is important to whether the student is interested in developing his potential in this art. Students also feel a sense of achievement when they can complete a task with focus.

In the journals, some students also showed the impact of the spiritual narrative given in class and how they applied the Biblical principles to their daily lives. In Lesson 5, the teacher explained the Bible verse and a story concerning perseverance. Students then shared in their journals about how they showed perseverance.

*Student C: Paul told us to "Forgetting what is behind and straining what is ahead." I will do so in the next exam. I will forget my good results in my last exam. I have an athletics competition tomorrow. I will continue to train hard and see whether I can get a prize.*

*Student D: I will try to write the words again, even though my friend seems to do better.*

Regarding calligraphy exercises, students also first showed reluctance to submit these exercises. Teachers initially used reminders to remind students to submit their work. Finally there was an indication of a positive change of attitude towards submitting homework the end of the course. Fig. 2 indicates the number of students who did not submit the exercises after each lesson decreases as the course continues.

#### Limitations of this study

As Lu suggested in her research, it is important for students to maintain a consistent time frame for practicing Chinese calligraphy so that they can have consistent reinforcement of the techniques that they have learnt. It was quite impossible for our study to do so due to the students' busy schedules and the short recesses and lunch sessions.

## Conclusion and teacher's reflection

To conclude, the data of this research indicates a positive relationship with students' increase in knowledge of Chinese calligraphy and their temperament. Our findings such as increased teacher-student communication and increased motivation to learn seem to convince teachers that maintaining a warm learning environment is equally important to develop students' confidence in this traditional art.

To enhance students' temperament further through learning Chinese calligraphy, the following recommendations are made:

1. The time frame of the course should be extended to 1.5 hours. The longer duration helps students to have a better understanding of not only the basic calligraphy strokes but also the advanced ones.
2. Instead of conducting the course in Electives, this calligraphy course should be included as part of the school curriculum. Such approach helps to increase parental support for practicing this art in an exam-oriented education system.
3. The materials of the course can be further developed to have more relevance to their daily lives. It is suggested to teach students how to write poems that they have learnt in Chinese lessons so they will feel greater satisfaction.
4. Teachers can ensure the setting of the classroom is favourable for practicing Chinese calligraphy. These include sinks for washing the ink plates and the height of the chairs help them to maintain good posture when writing.

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## Exploring educational settings for 'slow learners' in Pakistan: Teachers' perception

*Fozia Mushtaq Mannon<sup>1</sup> & Zahida Parveen<sup>2</sup>*

<sup>1</sup>The University of Auckland

<sup>2</sup>University of Education, Pakistan

Slow learners<sup>28</sup> are students who are struggling learners. Throughout their academic life the students who struggle lose their zeal and zest for education. This phenomenon leads to dropout from their respective schools. One big reason for their lack of enthusiasm for studies and school is that they typically function one or two years behind their peers in one or more academic subjects (Eastmead, 2004; Farooq, 2013). Studies vary in the IQ ranges that are used to identify slow learners: 70 to 90 (Texas Education Agency, 1989) and 70 to 85 (Forness 1985; Kaznowski, 2004). Studies do not support a standardized definition of slow learners. The most common variable used in these definitions is below average intelligence. Slow learners are students who learn more slowly than their peers, do poorly in school, and still are not eligible for special education (Griffin, 1978; Shaw, Grimes & Bulman, 2005). Kirk (1949) defined the term slow learner "to children of relatively low intelligence" (p. 146). The National Association of School Psychologists (NASP) refers to slow learners as "students with below average cognitive abilities who are not disabled, but who struggle to cope with the traditional academic demands of the regular classroom" (Carroll, 1998, p. 205). The Texas Education Agency (1989) defined slow learners as "students who have traditionally met with failure in the schools, those whose intellectual functioning level, IQ 70-90, has affected their ability to keep up with the pace" (p. 1).

These definitions describe academic difficulty, the most common characteristic of slow learners. A list of characteristics presented by Shaw (2010) includes low intelligence and poor

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*Author Contact:* fman065@aucklanduni.ac.nz

<sup>28</sup> The term "slow learner" although internationally not accepted, is used in this chapter because at district level in province Punjab, Pakistan, 35 schools were named as Government Institutes for Slow Learners. The authors made the decision to maintain the culturally accepted label.

academic performance, difficulty in understanding abstract information, difficulty in generalizing skills, difficulty in organizing new information, difficulty in assimilating prior information to new information, difficulties with time management, low academic motivation, poor self-concept, and high risk of dropping out.

According to Eastmead (2004), the prevalence rate for slow learners is 20%. Other studies (Neisser, 1998; Shaw, 2010) indicated 14% prevalence rate of students who are slow learners. Thus, a typical classroom of 30 children can contain about four to seven slow learners and a school system with 50,000 students may include 7,000 to 10,000 populations of slow learners.

The most prominent principle of any education system is to provide quality education to all learners irrespective of their learning limitation. This strategy will help the learners to recognize their potential and thereby participate meaningfully in the society. International documents such as the United Nations Convention of the Rights of Child and the United Nations Educational, Scientific and Cultural Organization's Salamanca statement place great emphasis on facilitating inclusive education and taking intensive action to identify barriers to learning in the regular school system (Prinsloo, 2001). Teachers' attitudes and lack of interest in identifying and supporting learners is a contributing factor to the increase in number of those students who experience difficulties in learning (Prinsloo, 2001). Due to lack of knowledge and expertise, teachers find it difficult to train and educate learners. This causes frustration, demotivation and emotional detachment, which disrupt effective teaching and successful learning (Nissen, 2000; Sethosa, 2001; Silberg & Kluft, 1998; Walker, Colver & Ramsey, 1995).

Another responsible factor is environment, which helps to nurture the essential human characteristics of learners. If children are not provided with a positive nurturing environment, they can be emotionally neglected; consequently, children's self-esteem is negatively influenced (Pringle, 1986; Weeks, 2004). Therefore, the major role players, such as educators and teachers can provide appropriate and necessary nurturance, stimulation, encouragement and protection to children at various stages of development.

To understand the process of facilitating inclusive education, one has to understand the complex education system of Pakistan, which can be viewed from different perspectives. Firstly, presence of varied school system, such as (a) government schools; (b) elite school system; (English medium) (c) madrasa school system. Second the education system can be divided into five layers known as; Primary level (Class 1-5); Middle level (Class 5-8); Secondary level; Intermediate level; University level (Masters, Research work). Another approach to examine the Pakistan Education System is the classification system of special need learners who become part of segregated settings known as special education schools. Both Government and private sectors provide services to special need learners.

As a young developing country, Pakistan is making efforts towards inclusive education, to remove barriers, to provide equal opportunities for education to all types of learners and to increase the enrollment of students especially at the Primary level. Recently, in 2012, Special Education schools were asked to transfer children from the segregated, special education systems to inclusive education settings of the general education system that are proximate to the Special School. This gradual transfer of resources, expertise, staff and pupils from segregated settings to inclusive settings is also supported by the Seven Points of the Inclusion Charter in 1989 (Centre for the Studies in Inclusive Education, 2000).

However, in 2007, the Special Education Department (Punjab, Pakistan) established 35 district-level, slow learner schools in Punjab (Table 1). This step itself promoted segregated settings and lack of determination of human rights.

The Table 1 of Government Institutes for Slow Learners shows that the boys are 61% while the girls are 39% of the total enrollment at Government Institutes for the Slow Learners. The districts with high enrollments of slow learners are Rajanpur, 91; Multan, 86; and Okara, 82.

*Table 1.* Enrolment in Government Institutes for Slow Learners (GISL) Punjab

Enrollment up to May, 2012									
Sr. #	GISL	Boys	Girls	Total	Sr.#	GISL	Boys	Girls	Total
1	Lahore	43	38	81	19	Multan	41	45	86
2	Kasur	45	8	53	20	Pakpattan	35	14	49
3	Sheikhupura	41	18	59	21	Khanewal	22	14	36
4	Okara	48	34	82	22	Lodhran	28	50	78
5	Nankana Sahib	24	11	35	23	Vehari	57	24	81
6	Gujranwala	26	11	37	24	Sahiwal	38	22	60
7	Sialkot	27	27	54	25	Rawalpindi	41	33	74
8	Gujrat	36	12	48	26	Jhelum	32	11	43
9	Narwhal	13	9	22	27	Chakwal	35	16	51
10	Hafizabad	28	18	46	28	Attock	46	18	64
11	M.Baha-ud-Din	38	40	78	29	D.G. Khan	27	25	52
12	Faisalabad	46	21	67	30	Layyah	29	27	56
13	T. T. Singh	42	33	75	31	Muzaffargarh	46	27	73
14	Jhang	38	13	51	32	Rajanpur	51	40	91
15	Sargodha	47	22	69	33	Bahawalnagar	32	27	59
16	Mianwali	24	14	38	34	Bahawalpur	26	24	50
17	Khushab	34	17	51	35	R. Y Khan	44	30	74
18	Bhakkar	28	20	48					

*Note.* Enrolment of slow learners in Government Institutes of Slow Learners (Directorate of Special Education, 2012)

Pakistan's policies indicate varying opinion about inclusion. On one side, emphasis is on including students with disabilities in regular settings. On the other hand, 35 GISL all over Punjab are functioning, which contradict the idea of inclusion. The present study therefore was designed to investigate the teachers' views regarding placement of slow learners in different settings.

### *Significance*

This study will provide insight into teachers' perceptions on educational placement of slow learners and an opportunity for policy-makers to promote inclusion of slow learners in the regular school system by making the learning environment barrier free for all learners. Moreover, this study would be useful for school administrators to overcome the problems faced by teachers in terms of workload and teacher training programs.

## Objectives of the study

1. To investigate the perceptions of teachers regarding educational placement of slow learners
2. To find out the opinions of teachers regarding educational placement of slow learners after appropriate teacher training and reduced work load
3. To compare the perceptions of teachers from different educational settings (regular government, regular private, and teachers of GISL)
4. To investigate school services, instructional strategies, and identification procedures currently being used for slow learners in different school settings

## Questions of the study

1. What are the perceptions of the teachers from different school settings regarding educational placement of the slow learners?
2. What are the opinions of teachers regarding educational placement of slow learners after appropriate teacher training and reduced workload?
3. What is the difference between perceptions of teachers of Government Institutes for slow learners and regular schools: both private and public?
4. What school services, instructional strategies, and identification procedures are currently being used for slow learners in different school settings?

## Methodology

To conduct this study mixed methods were used. Mixed methods are increasingly attractive (Creswell, 2003) and commonly used approach (Fraenkel, Wallen & Hyun, 2012). This approach was used due to the benefit of including both qualitative and quantitative data and analysis at relatively low cost for the researcher (Erickson & Kaplan, 2000).

### *Sample*

For this study, 184 teachers from different settings were selected. For the purpose of data collection 132 teachers from 12 general education settings (six public and six private) were conveniently selected from Lahore. Moreover, questionnaires were posted to all 35 Institutes of slow learners across Punjab. After continuous follow-up via phone calls only 52 teachers from 10 GISLs responded to the posted questionnaire.

### *Instrument*

The questionnaire designed for this study contained three sections with both open-and-close-ended questions. Section A included demographic information related to teachers like gender, age, qualification, designation, experience, workload, class size, and number of slow learners in their classes (grade repeaters).

Section B consisted of 29 closed-ended questions that investigated the identification procedures, classroom instructions and support strategies used by teachers to help slow learners. Section C of the questionnaire consisted of four questions with yes and no responses to find the opinions of teachers' regarding placement and identification of slow learners in

segregated or regular classrooms with the preceded questions based on effective teacher training and decreased workload. These four questions also required teachers to supply perception and views in qualitative form. After pilot testing, this instrument was used to collect data from the teachers of slow learners, in both segregated and regular settings. This instrument was found highly reliable ( $\alpha = 0.86$ ).

## Results

The data were analyzed statistically by using SPSS. In frequencies Table 2 of all demographic variables were computed.

*Table 2.* Frequencies of demographic variables of participants

<u>Variable</u>	<u>Category</u>	<u>Frequency</u>	<u>Percent</u>
Gender	Female	156	87.2
	Male	23	12.8
Teachers	GISL	52	28.3
	Public Schools	90	49.5
	Private Schools	41	22.3
Designation	SPED	8	4.4
	Educators	136	75.6
Education	MSc PSY	15	8.4
	MASE	9	5.0
	Any Other	155	86.6
Professional Education	Med	57	37.5
	Bed	61	40.1
	Any Other	19	22.4
Marital Status	Married	126	72.4
	Unmarried	48	27.6

Results reported in Table 2 revealed that 87.2% teachers were females and 12.8% teachers were males. Special educators constituted 5% and psychologists were 8.4% of the total participants. This table also indicated that from total number of 52 GISL teachers 15 were psychologists and 8 were special educators. However, in general educational settings none of the respondent was special educator or psychologist.

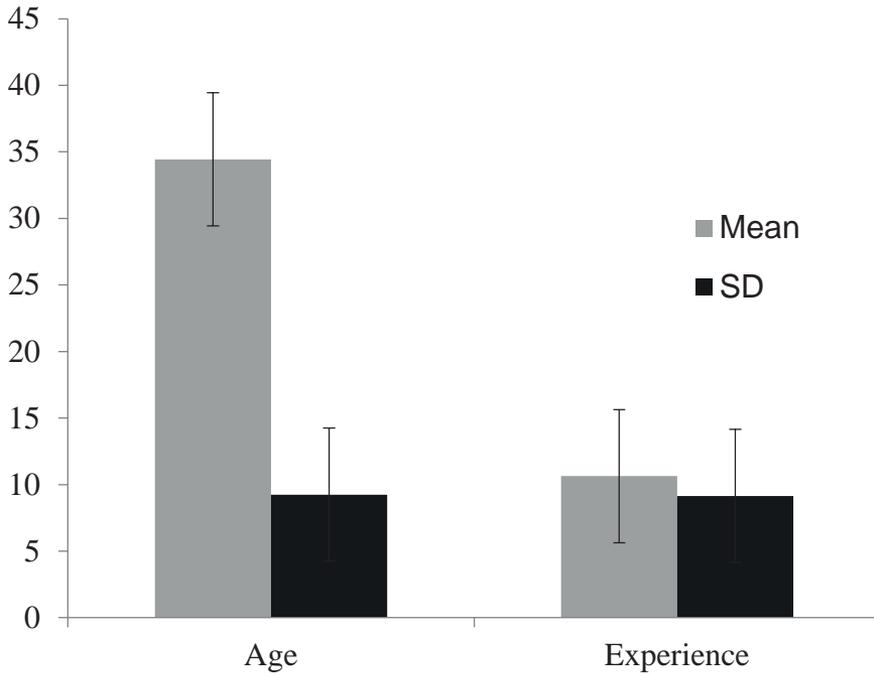


Figure 1. presents mean and standard deviation of two variables age and experience. The mean of teachers experience is of eleven years.

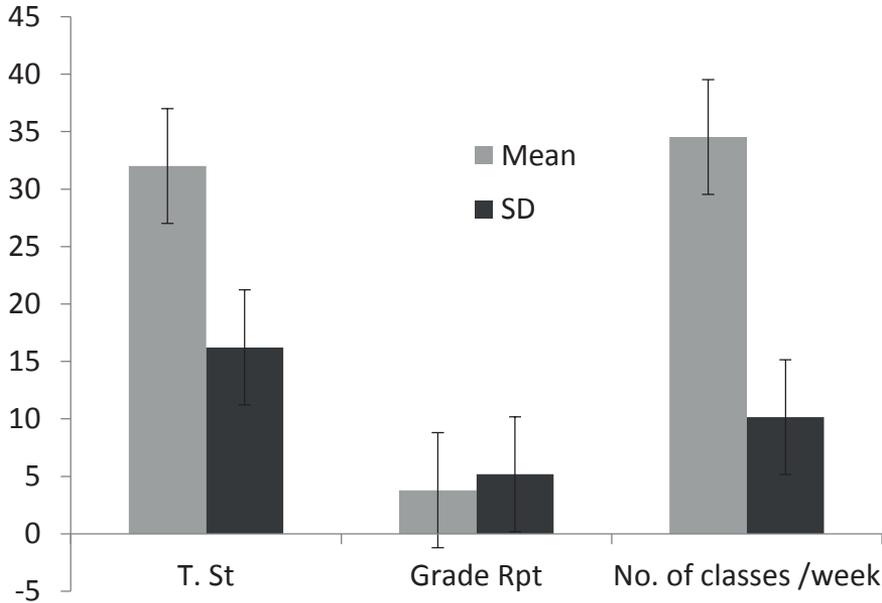


Figure 2. Depicts Mean and SD of total no. of students, grade repeaters, and no. of classes per week (This figure displays that average of four students is slow learners in a class of thirty-two students.)

### *Results of participants' responses on school services, instructional strategies, and identification procedures*

Section B, which consisted of school services, instructional strategies, and identification procedures indicated that 75% teachers performed duties other than teaching and 55% teachers believed that extra school duties affect the quality of their teaching. Sixty-four percent teachers mentioned that psychologists had never visited their school. Moreover, to identify slow learners, 78% teachers used periodical reviews of classroom tests, activities, and previous grade performance while 81% teachers used the strategy of continuous observation to identify slow learners.

### *Results of participant responses on inclusion of slow learners*

In Table 3 frequencies of four questions are presented. The first question was based on teacher's opinions regarding inclusion of slow learners in general education settings after appropriate teacher training. The second question included the readiness of teachers to plan specific instructions if their workload is decreased. The third question inquired skills of teachers to identify slow learners. Based on first three questions the teachers were asked about inclusion of slow learners in regular classrooms.

*Table 3.* Frequencies based on participants' opinion regarding inclusion

Variable	Category	Frequency	Percent
Effective teacher training	Yes	163	91.6
	No	15	8.4
Reduced workload	Yes	168	94.4
	No	10	5.6
Identification skills	Yes	119	66.5
	No	66	33.5
Regular School Placement	Yes	133	75.1
	No	44	24.9

*Note.* The results of Table 3 implied that 91.6% teachers agreed that slow learners could be accommodated in regular schools if provided with appropriate teacher training and 94.4% teachers responded that they are ready to plan individual and specific strategies for slow learners if their workload is reduced. Regarding educational placement 75.1% percent teachers were in favor of regular placement for slow learners.

In Figure 3 comparison among teachers regarding educational placement are depicted. This figure shows that teachers of private regular schools are more willing to include slow learners in their classes.

### *Qualitative responses of teachers*

Participants' qualitative responses specified their perceptions of including slow learners in general education settings. The authors selected most representative quotations, which are stated by a different participant of the study. The first question of Section C asked the opinion of teachers on accommodating slow learners in regular schools if teachers are provided

appropriate training and 91.6% teachers agreed to accommodate slow learners after proper teacher training. The results are summarized in Table 3. One of the private school teachers explained that “appropriate training with regular observations and psychologist visits will help including slow learners in regular schools”. A teacher of public school shared her opinion by stating, “education of slow learners can be effective by proper training of teachers”, and a GISL teacher stated “Well trained teachers have great impact on the learning of slow learners. Therefore, they can be included in regular schools”.

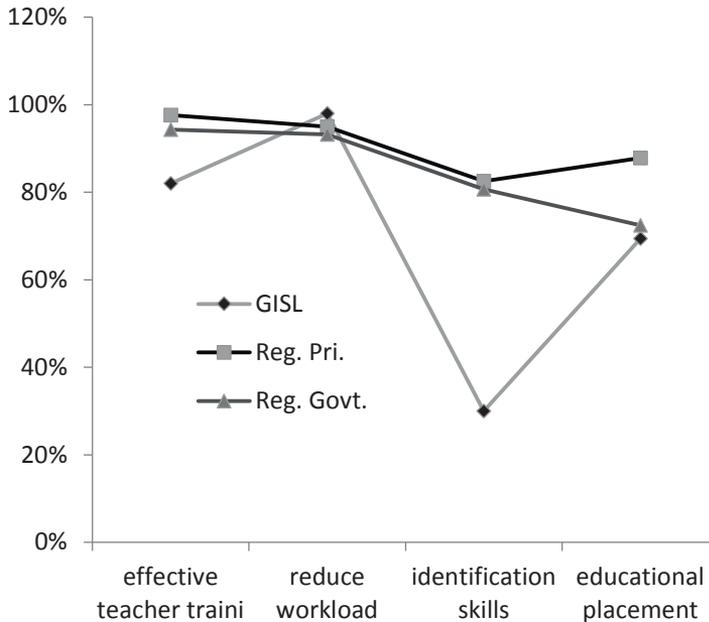


Figure 3. Comparison of participants from different school settings

Second open-ended question to teachers was about the readiness of the teachers to plan specific strategies if their workload allows? According to Table 3, 94.4% teachers showed willingness to plan individual and specific strategies if their workload is reduced. Public school teachers responded that “if my work load allows I will try all sorts of instructional strategies to encourage slow learners to the level of other high achievers”; “Whether my work load allows or not I will accommodate slow learners in my class”. Moreover, private school teachers’ expressed, “extra effort and motivational strategies are required to improve learning skills of slow learners”; “I would love to keep these students as only can be beneficial to improve their reading and writing and spoken skills”. However, teachers of GISL responded “we use individual education plan to teach slow learners but the workload becomes hindrance in effective teaching”.

The third category of open-ended questionnaire consisted of sufficient identification skills to find out slow learners and 66.5% participants responded that they have sufficient identification skills. This percentage is summarized in Table 3. For identification skills teachers used students’ responses on delivered lecture, observations, and achievement tests. However,

GISL teachers stated that “The school should hire psychologist or train teachers to identify slow learners”.

The fourth category of open-ended question consisted of educational placement of slow learners, which exposed much divided response of teachers of all settings as summarized in Figure 3. The private school teachers responded that regular settings provide more opportunities for slow learners as they can learn from high ability students. One teacher stated that “Being a slow learner is not a crime that those students should be kept in separate schools. They have equal rights to study with their age fellows in regular schools”. Public school teachers stated that regular placement of slow learners will increase their morale and confidence, heterogeneous grouping will develop their motivation, and recruitment of special educator will increase their academic achievement. Though, some teachers from public schools also suggested separate classes within regular schools.

Participants of GISLs stated that separate institutes should be used for proper training of slow learners and once they are ready they should be placed in regular schools, include slow learner after hiring a special educator in regular settings, segregated settings can provide individual attention, heterogeneous grouping will effect the learning of slow learners, large class size of regular setup does not support their learning, and slow learners learning should take place up to grade 5 in slow learner institutes and after that they should be placed in regular setting.

All 8 special educators from GISLs favored inclusion for slow learners as they stated that “I am in favor of regular placement because it will result in better learning due to peer interaction as segregated placement will result in poor social learning and low self-esteem”; “Yes, of course because slow learners just need help in some subjects and this help can be provided within regular schools with additional support”; and “Segregation is a bad idea. It will create differences among learners. Therefore education should be equal for all”.

The qualitative response of this study was supported by quantitative response of teachers mentioned in Table 3 and Figure 3.

## Conclusion

The intent of this study was to determine teachers’ opinion whether or not slow learners should be included in general education settings. This study determined that teachers of private school strongly agreed to place the slow learners in general setup.

Other significant aspect of this study was that all 8 special educators in segregated settings favored inclusive settings for slow learners and many teachers from general education settings recommended recruiting special educators.

## Recommendations

Participants’ responses to inclusion of slow learners in general education settings facilitated researchers to suggest some recommendations, such as (a) embedding existing teacher training program with appropriate learning approaches to include slow learners in general education settings; (b) developing barrier free effective learning environment in general education settings; (c) emphasizing on differentiated instruction so all learners are included; (d) recruiting

special educators in general education settings; (e) reducing class size and work load of general educators; (f) arranging regular visits by psychologists.

In general, participants of this study supported inclusion of slow learners. This study will provide insight for policy makers to promote and implement policies which are inclusive in nature and which are supported by all stakeholders such as general teachers, special educators, psychologists, and school administrators.

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## The teaching artist as cultural broker

*Melissa Proietti*

McGill University

There is an overall systemic failure to address the needs and interests of students from less advantageous circumstances at all levels of schooling. Research has shown that a curriculum which does not reflect the realities lived by students will not be engaging (Yazzie-Mintz, 2007), leading to lower student success rates and an overall negative experience within education. Critical pedagogy suggests that schools function in order to maintain the status quo (McLaren, 1994) in which racial, gender and class-based divides will guarantee some people a place at the bottom of the hierarchy for generations to come.

My research is based on the possibility that through the use of the urban arts and the cultural movement which exists around graffiti and street art in particular, students at a disadvantaged high school in Montreal, Quebec (Canada) will be given new opportunities to engage with their surroundings and their school work. Through implementation into the curricular requirements for a high school diploma, the urban arts are currently being gradually and conscientiously woven into the daily routine of the students attending James Lyng high school, in an attempt to engage them with their learning and with their community lives. Central to the model is the teaching artist, defined by Booth (2009) as a practicing professional artist with the complementary skills and sensibilities of an educator, who engages people in learning experiences in, through, and about the arts.

This builds on the mobilizing and expressive nature of graffiti and street art culture (Cooper & Chalfant, 1984; Powers, 1999; Wimsatt Upski, 1994; Kohl, 1962) to support critical reflection and student engagement in the school based on the cultural capital value of the urban arts (Bourdieu & Passeron, 1977; McClaren, 1989). The aim of this research is to continue to document the development of best and effective, culturally responsive practices in order to increase understandings of the visual urban arts as a meaningful strategy for growth in student success.

## Portrait and conception

The secondary school being researched for this project is located in Saint-Henri, a low-income neighbourhood and is the only high school to serve Anglophone students in the area. In 2013/2014, 65% of the students were either at risk or had been tested and identified by professionals as having learning disabilities or behaviour disorders (or both) and only 46% of the secondary five classes graduated. These are the lowest graduation rates across the school board, and reflect the strong correlation between poverty and drop-out rates.

The school's student population is quite multicultural and diverse as it serves a large range of boroughs. While the school itself is located in a historically socio-economically disadvantaged and primarily Francophone neighborhood, the students do not necessarily identify with their school and surroundings and, mostly, have not attended the same primary school. This poses some challenges for the teaching staff as the students are arriving with a variety of knowledge levels and skill sets. Creating a cohesive classroom environment which is both structured but meets the individual needs of the students is a daunting task given the diverse population and multilevel learning needs.

In an attempt to respond to the low student success rates and lack of student engagement, the school's administration, supported by the governing board and school board, is now working to become the first high school in Canada with a curricular focus on the urban arts. The urban arts include a range of aesthetic practices that are closely tied to, but also extend beyond, the aesthetic forms and values of hip-hop culture. These forms include rapping, DJing, breakdancing and other hip-hop dance forms, and graffiti, but also more recent forms such as hip-hop theatre, photography, journalism, and fashion (Chang, 2007). Engaging students through arts-based programming was envisioned to help students make personal connections with the material and increase functioning and ability as well as to enhance understanding with the non-art subjects (Goldberg, 1997; Catterall, Champeau, & Iwagana, 1999).

This idea was first conceived in 2011 when school administration and support staff noted that in spite of low class attendance rates nearly 70% of the students were attending after-school and lunch-time extra-curricular activities. Many of these activities were based in the urban arts, including the graffiti/street art program which I had started with a graffiti writer that year.

The urban arts focus aims to rebuild the traditional school framework to include diverse cultures, aesthetics, and curriculum strategies, empowering and mobilizing youth to access their voices within their own inner and outer school communities, including the critical analysis of their roles as cultural producers and consumers (Campbell, 2013; Prier, 2012; Giroux, 1983). This development is now supported by a university-school-community arts organization partnership. This partnership helped to support early pilot projects including the mural described here as well a music-based project which paired up Hip Hop artists with both French and Science classrooms to help develop and facilitate curriculum content. The artist fee for the mural project was covered by Montreal Hooked on Schools, which supports projects pertaining to school perseverance outside of the classroom.

## The visual urban arts

When graffiti first came to the public's attention, as documented in the American mass media in the 1970's and 80's, the people participating in the culture were young, marginalized Americans who used their ingenuity, creativity and talent to create a space for themselves and declare their presence in an undeniably bold manner. In a society where they had little or no expressive outlets available and were faced with grim futures of low-paying jobs, unemployment or the probability of ending up involved in street thug life, graffiti became an outlet (Castleman 1982; Ferrell 1996; Powers 1999; Austin 2001). Graffiti gave these emerging artists and young activists the opportunity to become kings and queens of their own domain and claim or reclaim space without having the economic potential to buy it.

Historically, graffiti culture valued the mentorship of younger writers with the older crew members; respect was something which was earned over time and certain rules of conduct were almost universally followed by those participating in the culture. Graffiti culture has since changed and evolved under heavy media exposure and the notable support and financial backing from art collectors and marketing companies. However, at the root of what has developed into current graffiti and street art culture are the values and expectations upon which these cultures were founded such as respect, freedom of expression, empowerment, a sense of belonging and accomplishment as well as recognition and pride. These values and ultimately strengths can be linked to relevant learning tools such as cooperative learning, mentorship and community and indicate the positive potential outcomes of use in formal education settings.

While some have critiqued the graffiti writer's behaviour and ambition for fame and notoriety as unhealthy and anti-social based on its illegal and risky nature (Taylor, 2012) it is precisely this ambition and drive which is lacking in the school environment. Openly discussing and reflecting on the illegal and risky nature of graffiti without passing judgement is an important demonstration of an educators' openness to the cultural value of graffiti, which can be facilitated by the implication of a *cultural broker* (Gay, 2000) in the classroom in order to delve into the intricacies of the culture. According to Gay (2000) the role of the cultural broker is to enhance the information being taught by the educator to ensure that the facts being taught about the culture are "accurate, authentic and comprehensive" (p. 142). Who would be better placed to discuss the intricacies of the graffiti and street art culture than people who understand the realities of this world from first-hand experience? Having this unique perspective on the culture present in the class can help students reflect critically on all the information they have gained through their own personal experiences and use different lenses to engage with the art and what has been documented about the urban art movement.

Using the cultural broker, which through early experience at this school is recognized as the teaching artist, is an imperative method of ascribing to the culturally relevant pedagogy approach in order to introduce a cultural concept which is foreign to the majority of the teaching staff. Seen in the preliminary research, as concepts cross over from after-school content to classroom content, many of the students arrive with more knowledge and experience (cultural capital) than their teachers. In order to assist the teachers in harnessing their students' knowledge and to help guide students to do their own research and practice having a teaching

artist helps legitimize the experience to students and enables the teacher an opportunity to develop culturally sound and responsive curriculum content.

### Process building experience and preliminary research methodology

As a preliminary research pilot project the after-school street art program developed into a curricular mural project during the winter of 2015. This was a first attempt at working to create a visual arts piece counting towards the students' final grade and was considered an urban arts project based on the style of art and method of working.

Working with well-known New York City graffiti writer/street artist Turtle Caps on this project, we were given a group of five pre-selected students in secondary two (13-14 years old) with no guidelines from the teacher as to what curricular requirements they would need to be working towards attaining.

This qualitative study was done using participant-observer methodology, which defined my role as "a member of the group but is known as a researcher" (McMillan, 2008, p. 278).

In our first meeting the students questioned my particular role in the project and it was explained to them that I was present to help them with the mural, and to help the artist as he was new to the school but that I would also be using this project as research for my own school work. Two of the five students knew me already from previous projects and activities and all five students were comfortable with my role within the group. There were no formal interviews conducted with the participants since this was a pilot project and ethics approval was not sought for individual student interviews.

During the planning sessions for the mural design I collected field notes and took photographs of the process. Once the mural was being painted I would work alongside the students and then write about the session once it was over. Along with the field notes I also conducted an in-depth interview with the artist two months into the project.

This project began by taking the students out of their art class whenever they had scheduled class time (alternating from once to twice weekly). This project was meant to be finished within a four week time frame, however given the size and condition of the wall it took three months to complete. After our first four weeks had finished we were no longer able to take the students every time they had art as they all began to fall behind in their assignments (they were expected to keep up with the curriculum even though they were working on this project). We were then only able to take students once every two weeks and finally for one full school day, which meant our students stayed with us for a full seven hour school day, breaking only once for a 30 minute lunch. After this full-day session we were no longer able to take students out of class and therefore the artist and I worked for two more sessions, of three and four hours respectively, during after-school hours with the students who chose to stay and help out.

The completed mural was a forty foot production, which had the title 'Urban Arts Inspired Minds' and was a mix of acrylic latex paint and spray paint. Four out of the five students completed the process with the group and attended more than 70% of the sessions held. Three out of the five were also willing to stay after school hours to work on the project and two of the five would ask friends to stay and help and as well. We would also allow several students from other classes and grade levels to stay and work on the mural when they found themselves in

situations of not being able to be in their classrooms (disciplinary measures or personal decisions to leave the classroom).

### Teaching artist, successes and challenges

A key component to the project was selecting the artist as this pilot set the tone for future urban arts projects. Choosing an artist who could relate to the students and their lives was extremely important in order for a trusting relationship to be established within the group. The teacher's belief in the students' capacity for success and the ability to relate to the students, understanding and sharing similar worldviews, are two of the most important factors in being able to establish and sustain culturally relevant pedagogy (Hyland, 2009).

In the interview the artist identified the importance of reaching the students on their level, in order for them to be able to work together and knowing that he would get more out of the students if he was on the same level as them. The artist expressed on many occasions to the students that he wouldn't be there if he didn't think the project was important, that it would turn out looking good and that they could complete the task. The artist never questioned their ability to succeed; he would only question their interest in participating and would allow them the chance to support the group in other ways if things were not doing well on any particular day (washing brushes, putting away supplies, looking through imagery).

It was important that students always felt that they had a place in the project in order to ensure that they would continue to participate with us and would feel compelled to attend school when they knew we had a planned session. In our first session the artist spoke to them about the importance of being committed to the group, as graffiti crews depend on all members to be present and working towards accomplishing a goal. The students were reminded of the importance of cooperative work and reliability when arguments arose about image content or task work.

The artist described the importance of his particular role with the students as being unique and less formal than their teachers. Given this, it opened many doors for discussions which were personal and meaningful for the students, who were both curious about the artist and his life as well comfortable and confident enough to question him and his opinions but never his judgement or his advice about how to improve their artistic skill. Students learned several new techniques while working on the mural, including shading, colour mixing, image projection and perspective points. Since these students had not been able to take art in their first year of high school several concepts which we thought would be familiar to them with were not. The school was only able to hire an art specialist as of the 2014-2015 school year, which has affected the level of ease which many students have with engaging in art-making.

For the artist, it was important that in the mural the students would have something they could connect to and feel they were a part of in their school, which to him is also an important element of graffiti and street art culture. In the interview he made it clear that while the students are not participating in graffiti culture by painting this mural they are still benefitting from what the culture represents and its implications within their daily lives. Identifying with graffiti culture and having it present in their school meant that some students may feel more willing to attend school on a regular basis, as they would be able to identify with something in their surroundings. The artist stated that life can be very hard but that sometimes having one

meaningful thing available can be enough to motivate youth to not give up. The particularity of graffiti is in its ability to make a bold statement and be a daily reminder and visually impressive statement which rarely goes unnoticed.

Another important factor in this process with the students was giving them the opportunity to use the knowledge they already had about the urban arts as they planned out the mural. The artist commented that the students in our group saw graffiti and street art every day, not only because of its presence in popular culture but because of its prominence in the neighborhood. Instead of the artist playing the role of the expert and giving the students the knowledge that he has from 20 years' experience in the culture, the discussion was consistently around their experience with the art and how that has shaped their understanding and actions towards their environment (school and beyond). The students would find themselves in a dialogue with the artist about subjects such as poverty, discrimination, violence etc. These discussions were consistently started by the students and displayed their interest in knowing about the role of the urban arts in the development of these issues. Once these discussions were open it gave us the opportunity to question the students on their understanding and experience with the current power structure (school, authority and government), critiquing its current state and thinking of suggestions for improvement. Being able to implement both culturally relevant elements into the curriculum and then being able to also question current power structures are also some of the main elements of adopting a culturally relevant pedagogy within a school (Ladson-Billings, 1994; Gay, 2000).

The main identified challenge in this project was the lack of clarity about what the expectations were of the students with regards to their participation for grading purposes. It was demotivating for the students to have to complete double the amount of work as their peers based on their willingness to participate in the project. This was particularly challenging to one student whose school attendance record was low. With all the classes she missed she ended up not being able to attend many of the mural sessions, even when she was in school as she had to be in class to catch up on her missed work. Eventually, as the mural progressed without her she expressed she no longer wanted to participate as she no longer felt her ideas were being incorporated into the design.

Her reaction was important to keep in mind moving forward as feelings of exclusion and structural discrimination are what graffiti culture was built on confronting.

In order to avoid this from happening in the future clear parameters of what participation will entail for both students and teachers will need to be agreed upon before the project begins. Allowing graffiti to be used stylistically but not respecting and exploring its traditions will not be the culturally relevant and responsive pedagogy we are hoping to build with the students.

Building on these experiences and processes we are now moving towards co-creating new knowledge about the integration of the urban arts (Freire, 1974) which will help to guide the process of creating cross-disciplinary curricular projects in the 2015/2016 school year.

## Conclusion

As the school slowly begins its transformation into a curricular urban arts school the importance of weaving the teaching artist into the fabric of the school will be an important component in succeeding at remaining true to the art forms being adopted by the school. As seen in this pilot project, teaching artists are able to speak to a reality which is unknown to most classroom teachers and are often able to translate that knowledge into necessary skills. This includes both the technical components of learning different art forms and mediums as well as being able to speak to a culture which exists in the lives of the students but outside of the textbooks.

The artist on the project stated in the interview that the students in these projects are not doing graffiti given that they are participating in art projects in a controlled and sanctioned environment. However they are benefiting from working within the cultural values and norms which represent and respect the struggle that many of the students face.

The benefit for the students who participated in the mural project was not that they were becoming members of the functioning graffiti culture in their city but that they were being given the opportunity to learn and use tools designed to reflect their interests and realities, ones which they could adopt, personalize and use in many different circumstances. The students in the mural project worked on learning to work cooperatively, developed the discipline of seeing a project through until the end, engaged in meaningful dialogue with myself and the artist and were consistently able to express opinions on current news items. These are all skills which the students demonstrated throughout the project and are skills which are useful and desirable in classes other than art. Recognizing and respecting the validity of this knowledge will be essential in the development of a culturally relevant and sustainable urban arts school

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## Context of teaching and teacher education in Pakistan: Ideals and realities

*Meher Rizvi*

The Aga Khan University

There is a growing body of research which argues that teachers' beliefs and practices are embedded within the socio-cultural contexts of their work (Kelchtermans, 2014; Robins, 2005; Rogoff, 2003). However, most of the research is quite often exclusively focussed on the classroom level; thus signifying that teachers' lives and works are confined within the classroom boundaries. I tend to agree with Kelchtermans (2013) who argues that in order to properly understand teachers' work lives (and the development of their professional self in it) as well as to prepare future teachers for their job, we need conceptual tools and frameworks to capture and disentangle the multilayered, intertwined reality in classrooms, schools and educational systems.

The task of studying multilayered realities becomes even more important in a context such as Pakistan where the teachers are probably confronted with a new reality every day. The schools are bombarded with myriad reform agendas, and just when the schools have found their standing there are disturbances of various kinds which shake the very foundations of schools and education systems. The context is further complicated by a variety of Pakistani schools ranging from very elitist for profit private schools to non-profit community schools and non-elitist private schools for children from low income families; the religious schools, commonly known as 'madaris', of varying quality and public schools which range in quality from exceptional model schools (relatively small in number) to a number of schools offering sub-standard education.

The teaching force in Pakistan is also of varying quality. Traditionally, teacher development in Pakistan has followed two key pathways,

1. Preservice teacher education, and
2. In-service teacher education.

For a long period since independence (from 1947 to quite recently) the preservice pathway, with its heavy reliance on teacher education as training under government control, continued to be lamented for its poor quality and for its incapacity to develop teachers as professionals who had the capacity to initiate and sustain improvements at the school level (MoE, Policy and Planning Wing, GoP, 2009; Pre-STEP, Pakistan/USAID, 2010). All the public sector teachers were under the law required to undertake preservice training offered by the state. This authoritarian approach to teacher preparation had no or very little impact on the quality of instruction in the public schools (Hoodbhoy, 1998). Private school systems, during this period, continued to grow stronger. Since most of the private schools had their own system of in-house teacher development, they did not require teachers to obtain any formal preservice training. In fact, it was growing dissatisfaction with preservice teacher education that led to a number of institutions offering in-service teacher education. These include a number of teacher training resource centers and teacher education institutions in the country offering degree awarding graduate and post-graduate level programs, continuous professional development programs and donor supported government educational projects. These institutions offered different teacher education programs of relatively higher quality.

In 2012, the Higher Education Commission (HEC) in Pakistan revised curriculum for BEd (Hons.) elementary and Associate Degree in Education (ADE). In line with the standards of other professional degrees such as medicine, engineering or law, the four-year BEd (Hons.) degree intends to develop teachers as professionals who require comprehensive content knowledge and intensive professional training (HEC, 2012). The key question to ask at this stage is what took Pakistan 65 long years since independence in 1947 to design a teacher education curriculum which has the potential to develop and regard teachers as professionals? Another related question is would Pakistan be able to achieve the professional standards of teaching and teacher education as outlined in the revised curriculum? The paper unfolds and discusses the socio-cultural, socio-political and socio-economic context which drives teacher learning and development in Pakistan. In conclusion, I argue that it is important to view teachers' and teacher educators' work rooted in their cultural contexts for a deeper understanding of what constrains teacher education and what opportunities it offers to promote teacher learning and development.

### The culture, the politics and the economics of teacher education

On the 14th of August 1947, Muhammad Ali Jinnah led India's Muslims out of colonialism to independence. Quaid-e-Azam Muhammad Ali Jinnah had a vision of a Pakistan built on character, courage, integrity and perseverance. Jinnah had, on more than one occasion, emphasized the significance of education as an instrument of any nation's socio-economic change. Addressing the All Pakistan Educational Conference in November 1947, the Quaid stated:

If we are to make any real, speedy and substantial progress, we must... bring our educational policy and programme on the lines suited to the genius of our people, consonant with our history and culture, and having regard to the modern conditions and vast developments that have taken place all over the world... What we have to do is to mobilize our people and build up the character of our future generations... In

short, we have to build up the character of our future generations which means highest sense of honour, integrity, selfless service to the nation, and sense of responsibility, and we have to see that they are fully qualified or equipped to play their part in the various branches of economic life in a manner which will do honour to Pakistan (Mujahid & Merchant, 2007, pp. 26-27).

However, his untimely death in September 1948 also marked the death of the visionary leadership that was required to guide the newly founded state on to the road to progress and development. This is not to say that Pakistan's education system has not changed at all. Quantitatively, it has shown immense progress. In 1947-8, Pakistan's entire educational infrastructure was estimated to comprise around 10,000 primary and middle schools (1,700 for girls), about 408 secondary schools (64 for girls), 46 secondary vocational institutions (18 for girls), 40 Arts and Science colleges including five for women, and two universities. There was not a single professional college in the country (Jalil, 1998, pp. 34-35). According to the, Ministry of Education, Academy of Educational Planning and Management (2013), Pakistan now has 154,163 primary schools, 41,942 middle schools, 28,664 high schools, 4,480 higher secondary schools/inter colleges, 1,397 degree colleges and 139 universities.

The quantitative expansions do us proud, but the qualitative front leaves many of us apprehensive regarding the future of Pakistan. In fact, one of the significant factors which led to the demise of public sector in higher education is the imbalance between the quantitative expansion of higher education and the mechanisms for maintaining qualitative control.

Since independence, Pakistan has seen the rise and fall of different governments. Each government tried to improve the staggering status of education in public schools. As a result different education policies have been planned and implemented in Pakistan since 1947. It becomes clear from the close analysis of different education policies that they all say the same thing in different words. The main focus of all the policies has been the target for Universal Primary Education (UPE), which has not been achieved as yet. Nearly all the plans have emphasized the importance of quality education and have reiterated the improvement in teaching standards as one way of improving quality. Yet, the improvement in terms of teacher training programs has only been minimal.

Shifting the emphasis of education from colonial-administrative objectives to a professional and technical bias suiting a non-dependent, progressive economy (Hoodbhoy, 1998) might have been the intent of educational reformers (in words) but the implementation of reform initiatives followed the same trajectory of dominance that was used to govern the education system. Teacher development plans were prepared by the experts, and implementation strategies were also decided by the experts. Trainings were mostly conducted in places away from schools. The focus in most of these teacher education initiatives was on the development of teachers' pedagogical skills, pedagogical content knowledge and knowledge of subject matters. However, heavy investment in developing teachers' competency could not bear fruitful results. Research (Rizvi, 2003; Rizvi & Elliott, 2007) has illustrated that top-down authoritarian approaches to teacher education left teachers bewildered, unmotivated and doubtful of their own capabilities to successfully improve teaching and learning processes. As a result, the schools, particularly the public schools continued to be criticized for outdated curriculum,

substandard textbooks, teaching methods based on rote learning, and poor organization (ICG, 2004).

The current era of globalisation and knowledge economy has placed new expectations and demands on teaching and learning. In Pakistan, the private sector is playing an important role in meeting the new demands. For example, the Aga Khan University (AKU) has made a significant contribution in health education and teacher education, and the Lahore University of Management Sciences (LUMS) offers postgraduate education in business and computer education. The teacher education curriculum offered by the Institute for Educational Development (IED) in AKU is based on the modern concepts of teaching and learning, which can match up to the international standards. Many courses are now being offered using technology in blended learning mode. Teacher educational institutions are under pressure to help develop teachers' repertoire of pedagogies suited to the demands of Pakistani students whose geography of learning stretches far beyond the physical space of the school. Many young people, even from low-income brackets, make extensive use of television, video, satellite cable and easily accessible and cheap internet, which gives them access to broadcast from other parts of the world. Many classrooms are now equipped with virtual whiteboards and other online technologies. The generally accepted fact that public schools are deprived of up to date resources may not hold true for all the schools. There are public schools which are equipped with latest technologies. An important question to ask at this stage is whether the students in the public schools make effective use of the modern technologies, and whether the teachers have the capacities and the motivation to enrich officially prescribed curriculum? According to Tarar (2006) majority of the private schools, with English as the medium of instruction, enjoy the freedom to deviate from the curriculum offered in the public schools system. On the other hand, in public schools, the imposition of Urdu as a medium of instruction is accompanied by strict adherence to an officially prescribed curriculum imparted through official textbooks. The political and social consequences of this dual educational system exceed the original intentions of the advocates of the privatisation of education.

The duality of educational system is also reflected in the teacher education programmes. The teachers from state run or public school sector are required to undertake pre-service training offered by the state mostly in state run colleges where the medium of instruction is again Urdu. The quality of teacher education programmes offered by the state run colleges are generally characterised by outdated pedagogies, inadequate teaching of subject matter, lack of critical thinking and creative teaching skills (PreSTEP/USAID, 2010). Private teacher education institutions offered different teacher education programs, mostly in-service, of relatively higher quality. The medium of instruction in almost all of these institutions is English. Many teachers from the public education sector are provided opportunities to study in the reputable universities and institutions, but the dilemma is that most of them do not return back to their context upon graduation and those who do go back are swallowed up by the authoritarian interest groups who employ them to achieve their objectives. The duality of education system, therefore, persists and the public-private gap continues to widen.

Existing between the gaps are sporadic examples of those public school teachers and head-teachers who have managed to create models of exemplary teaching and leadership in their schools. Research (Rizvi, 2003; 2008) has illustrated that these schools, which initially began

with top down reform initiatives, relied on intrinsic factors such as personal drive, motivation, passion and commitment, once the reform programmes had ceased, to sustain change in their schools. However, these schools are so small in number that despite fitting the criteria of 'powerful schools' (Hopkins, 2001, p. 68) they become quite insignificant when the story of Pakistani education system is being told.

It has been 20 years, since UNESCO recommended that the governments of low-income countries spend 4 percent of their GDP on education (Warwick & Fernando, 1995). Pakistan still falls far short of this figure. The numbers ranged from 0.88 percent of GDP during the years 1955-60 to 2.04 percent in the years 1983-88. By 1990 the budgeted figure rose to 3.4 percent of GDP, but that increase did little to solve the problems of enrolment, teacher competence, student learning, and completion due to annual population growth rate of 3.1 percent between 1980 and 1991. Currently, Pakistan spends around 2 percent of GDP on education when the regional norm is 4 per cent and many developed countries spend 7 per cent (Barber, 2013). Pakistan devised a National Plan of Action for MDGS (Millennium Development Goals) Acceleration Framework (MAF) 2013-2014 that, among other objectives, commits the government to gradually increase allocations from an insufficient 2 per cent of GDP to 4 per cent by 2018, which is still far below the 7 per cent of GDP by 2015 target recommended in the 2009 National Education Policy (International Crises Group, 2014).

### Final reflection

The prevalent culture of domination and the politics of interest have developed a degree of scepticism among many teachers. They probably consider mandated reforms a burden. The burgeoning teacher education institutions have a challenging task of penetrating through this hard core of scepticism to move teachers onto the path of life-long learners. As a result, the success rate is quite low. Teachers concerns are also very much linked to the issue of the status of teaching in Pakistan. The teaching profession is staggering under the needs of a global economy and a burgeoning student population. In fact, teaching has become the employment of last resort of most educated young persons, especially males (Ministry of Education, 2009). The teachers are, therefore, said to be neither committed nor motivated to teach. Avalos (2002) argues that teachers who work in appalling conditions may view change as impossible because of such conditions. This does not mean that they should be left aside or forced to change. What it means is that the teachers need greater support than is provided in the schools in terms of structures that are not very rigid and time and resources for exploring new ideas. Research (Rizvi, 2003; Rizvi & Nagy, 2010) has illustrated that where the teacher education initiatives have been successful, it has been due to some key factors, which provided appropriate support and structures, and adequate time and resources to teachers for exploring new ideas.

In the end I revert back to Quaid-e-Azam's speech that I began my chapter with...

If we are to make any real, speedy and substantial progress, we must... bring our educational policy and programme on the lines suited to the genius of our people, consonant with our history and culture, and having regard to the modern conditions and vast developments that have taken place all over the world...

...and I assert that in a general sense teacher education in Pakistan is still where it started some 50 years ago. The analysis of the social-cultural background illustrates the constraints that have been in the way teacher development. Within the constraining milieu there have been examples of real success which offer opportunities for powerful teacher learning and development. The revised preservice teacher education curriculum may be rendered ineffective unless those in charge of teacher education develop understanding about the constraints and the opportunities embedded within the socio-cultural context of teacher education. Such an understanding is important for institutionalising teacher education and achieving the targets of quality education.

It is time the government paid heed to the teachers' concerns and supported them in the ways they want to be supported. The research in Pakistan needs to focus more broadly on teachers' life and work. Each teacher's life and work is influenced and shaped by countless factors operating in the culture to which he or she belongs. Before implementing any education innovation, it is important to unfold the ruffles of organizational constraints and discover teachers' feelings. I agree with Hargreaves (2002) that policy strategies designed to improve or raise standards in teaching and learning must acknowledge the emotional dimension of teaching. He goes on to argue that the literature of teaching and teacher development would benefit from understanding and explaining the emotional realities of teachers' lives. It is important to view teachers' and teacher educators' work rooted in their cultural contexts for a deeper understanding of what constrains teacher education and what opportunities it offers to promote teacher learning and development.

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## Learning to teach in new cultural contexts

*Judy Williams*

Monash University

Recent years have seen an increasing number of pre-service teachers participating in international study programs that aim to increase their intercultural competence and ability to teach in diverse cultural contexts. Increasingly, education is seen as a global activity, with teachers and teacher educators being expected to work with a diverse student population within their own countries, as well as having opportunities to work in overseas locations. In this chapter, results from a pilot study of five pre-service teachers from an Australian university undertaking a three week overseas practicum in the Cook Islands are presented. The study sheds light on the professional learning opportunities afforded pre-service teachers in this particular location by exploring the role of the local culture on their professional learning and the impact of this experience on their developing identity as beginning teachers.

### The role of sociocultural contexts in teacher identity

Kelchtermans (2013) reminded us that learning to become a teacher involves not only the daily realities of individual classrooms, but also the broader social, cultural and institutional contexts in which classrooms and schools are situated. He argued that “to properly understand teachers’ work lives (and the development of their sense of professional self in it)...we need conceptual tools and frameworks to capture and disentangle the multilayered, intertwined reality of classrooms, schools and educational systems” (p. 1). Kelchtermans went on to suggest that these realities include managing dilemmas, working collaboratively and interacting collegially. There is much literature on the development of teacher identity, and it is clear that becoming a teacher involves not only learning how to teach, but how to be a teacher in a variety of social and institutional contexts. For example, Beijaard, Meijer and Verloop (2004) argued that the construction of a professional identity for teachers must be seen within the sociocultural context in which they work. They noted that rather than asking the question “Who am I?” in relation to understanding identity, the more appropriate question is “Who am

I at this moment?” (p.108). While the personal is a key element in identity formation, the social, cultural and institutional contexts in which the individual is embedded has a significant influence on their understanding of self. Likewise, De Weerd, Bouwen, Corthouts and Martens (2006) argued that identity construction is an outcome of personal and inter-contextual factors, and relates to “the change in concepts and images that relate to who we consider ourselves to be and the development of a healthy self-worth and self-confidence” (p. 317). For pre-service teachers in particular, Izadinia (2013) found that the key ingredients in the development of a teacher identity were reflection on practice, participation in a learning community, the context of their learning, and reference to, or utilisation of, their prior experiences. She argued that teacher identity is neither stable nor one dimensional, but rather, a dynamic process that is created and recreated over time while learning to teach. It is constructed through an interplay between personal or internal qualities such as motivation and emotions, and external influences such as context and prior experiences.

### Short term study abroad programs

Literature on short term study abroad programs clearly shows that pre-service teachers experience a range of challenges and benefits in these programs in relation to their professional learning. These include the development of intercultural competencies that might not be afforded in placements or teaching experiences in their own local context. Walters, Garii and Walters (2009) found that positive outcomes include enhanced intellectual growth, personal development and global-mindedness; acquisition of a new understanding about life, culture, themselves and others; and an increased level of intercultural sensitivity. In addition, Walters et al. found that participation in international practicums also leads to improved classroom practice, such as increased risk-taking and increased creativity, as they manage without the type and availability of teaching resources that they are used to having. Likewise, Brindley, Quinn and Morton (2009) found that pre-service teachers encountered factors that created either consonance (familiarity) and/or dissonance (unfamiliarity) when working on international placements, and that “the challenge...can be a catalyst for accelerated professional development in pre-service teachers...study abroad experience does challenge pre-existing assumptions about teaching and causes trainee teachers to re-organize and broaden their developing understanding of teaching and learning” (p.532). Looking at the self-reflective learning potential of pre-service teachers in study abroad programs, Trilokekar and Kukar (2011) found that the most valuable learning for pre-service teachers came from the disorienting experiences they encountered and the extent to which they were able to reflect on these in relation to their existing beliefs and assumptions. They concluded that the greatest value of the study abroad experience lays in pre-service teachers’ ability to build “an awareness of their own frames of reference (social, cultural and political contexts), and...the challenge of confronting difficult discussions [and]...constructing and revising one’s perspective of both self and other” (p.1149). A similar argument was put forward by Parr and Chan (2015) who highlighted the deeply personal and complex identity work that is derived from international practicums, and that uncovering these complexities through dialogic endeavours within a professional learning community of teacher educators, mentors and fellow pre-service teachers.

## Methods

### *Aims and research questions*

The aim of this study was to examine the professional learning of Australian pre-service teachers who undertook a three week practicum in the Cook Islands. Specifically, the study aimed to understand how these pre-service teachers perceived the nature of the Cook Islands culture and its impact on their developing identity and practice as beginning teachers. The research question was:

- 1) How did the Cook Islands culture impact on the pre-service teachers' developing identity and practice as beginning teachers?

### *Participants*

Of the 27 pre-service teachers who undertook the Cook Islands placement in 2014, five agreed to be interviewed for this study. Demographic information is presented in Table 1:

*Table 1.* Demographic information of participants

Name (sex) (* indicates pseudonym)	Age range	Course
Lorraine * (female)	50s	Master of Teaching (Primary)
Sophie * (female)	30s	Master of Teaching (Primary)
Chris (male)	20s	Master of Teaching (Secondary)
Anne (female)	20s	Master of Teaching (Secondary)
Katharine (female)	20s	Master of Teaching (Primary)

### *Data collection*

Four of the participants in the study were interviewed for between 20 and 60 minutes. Each interview was audio taped and two participants also provided written answers to the interview questions, sent to all participants prior to meeting with the researcher. One participant was unable to attend the interview, and provided answers to the questions via email. A copy of the draft paper was sent to the participants to provide them the opportunity to correct any potential misinterpretation of data and to provide any additional information that they wished to be included.

### *Data analysis*

Analysis of the data occurred in three stages, deductive and inductive (Glaser & Strauss, 1999) as follows:

- Stage 1: A table was used to record data under three headings: culture, identity and practice. These were pre-determined categories, related to the aims of the study and the research question. As the audio files of the interviews were reviewed, key words/phrases were typed into the relevant columns. Reading of the written responses provided by participants also provided information for the table.

Stage 2: The table of data was re-read and analysed to find common themes across categories and between participants. A second table was then constructed that contained the first three categories, key concepts evident in each, and which participants mentioned them.

Stage 3: To manage the range of data, the second table was re-read and the key concepts reduced to two broad themes per category. These were:

Culture: *Infusion of culture into learning; Community*

Identity: *Self-efficacy; Values and beliefs*

Practice: *Adaptability; Inclusivity*

## Findings

Analysis of the data revealed that the practicum experience in the Cook Islands afforded challenges and opportunities for the professional learning of participants in this study, in terms of insights into the role of culture in teaching, their developing professional identity and their current and future practice.

### Culture

It was evident from the data that the Cook Islands culture permeated school life and created a strong sense of community for the interviewees.

#### Infusion of culture into learning

The pre-service teachers provided many examples of how they learned about, and were immersed in Cook Islands culture through interactions and activities in their schools. They encountered what they described as a laid back, informal approach to teaching, and witnessed elements of local customs being incorporated into classroom routines and activities on a regular basis. For example, Chris had to deal with lessons being interrupted by students “*suddenly going to collect coconuts or going to the farm area to pick taro.*” Ann observed a Maori medicine class while Lorraine and Sophie were both involved in traditional weaving and cooking events (umu). Such activities highlighted the integral part that the children’s history, language, social customs and culture played in their education and which the pre-service teachers had to take into account in their own teaching. Lorraine stated that “*I experienced specific traditional Maori culture, which was unique because of this location, throughout my placement. As a developing teacher the significant and outstanding characteristics, which [will have] impact for my future teaching career.*”

#### Community

All interviewees described their mentor teachers and other staff at their schools as extremely welcoming and friendly, and explained how their immersion in school life from the first day created a sense of being part of the learning community of teachers and children. All experienced great collegiality with their mentor teachers, and Lorraine and Sophie expressed surprise and delight that their mentor teachers and others in the school said that they learned from student teachers as much as student teachers learned from them. Lorraine felt that her life experience was valued by the teachers, and all participants commented on the respect they were shown as co-teachers and co-learners. Katharine explained that: “*As soon as I stepped off the*

*plane to my last day...I felt like a member of the Cook Islands family. I strongly believe that this acceptance and love played a significant part in my learning as a teacher in PI.*" In addition, the participants also acknowledged the importance of the learning community among the pre-service teachers themselves. They acknowledged how important the collegiality of the pre-service teachers was in their learning as teachers. Planning, debriefing, and supporting each other to deal with the various challenges that arose were key elements in their experience of this placement.

### *Identity*

There was strong evidence from the participants that their practicum experience in the Cook Islands impacted upon their sense of self as teachers, their confidence and their beliefs about learning and teaching.

### *Self-efficacy*

All interviewees said that their experiences in the Cook Islands increased their confidence and ability to 'think on their feet' in challenging circumstances. They became aware of qualities and skills that they did not realise they had when they had to improvise or were pushed beyond their comfort zone. For example, after being permitted to organise an after-hours incursion at her school, Lorraine felt that being supported to do this boosted her confidence and "*grounded me in what I want to teach, how I want to teach.*" Sophie explained that she has always felt the need to be well organised and prepared, but being in the Cook Islands she "*had to get out of my comfort zone*" and was challenged in a good way. She began to see herself differently, and stated that "*You can still be successful even when you're not super organised. I never thought I was the type of person who could just wing it [but] this experience gave me the confidence to think that I can be.*" Ann and Chris both had challenges in relation to teaching materials and resources, particularly in their teaching areas of Science and Physical Education respectively. The resources available for these subjects were much less than they were used to having, so they had to improvise on many occasions. Chris learned that "*I don't need a lot of equipment to provide learning opportunities for students*" and Ann stated that the Cook Islands experience "*made me feel empowered and confident [especially] dealing with limited resources.*" Katharine found that "*teaching for three weeks, away from home, without the resources I'm used to was challenging but also dramatically increased my confidence as a teacher.*"

### *Values and beliefs*

The Cook Islands experience contributed greatly to the pre-service teachers' developing sense of self as teachers, and their beliefs and assumptions about good teaching. Lorraine claimed that her experience was a "*reaffirmation and confirmation of what sort of teacher I want to be and what sort of environment I want to be engaged in. [It] confirmed my belief in the ideal of community in education.*" Likewise, Sophie reflected that the "*simplicity*" of the Cook Islands educational experience gave her "*more clarity about what it's all about. Sometimes we over-complicate things, and have so many expectations for students and teachers to perform...[It] made me realise there is so much more to education than just ABC...[This is] a personal ethos I have been developing...In the Cook Islands, I saw this happening in a classroom. I learned about myself as much as about teaching.*" Ann's experience enabled her to get to the "*core of what teaching really is.*" Her evolving beliefs about teaching and learning include the importance of

the “*more holistic*” approaches that she encountered in her Cook Islands school, and that this experience sharpened her perspectives on what she referred to as the “*core things*” in teaching: “*connection with students, subject knowledge, [and] ways of imparting that knowledge*”. While recognising the benefits of education in the Cook Islands, Chris also pondered about the lack of opportunities for formal education that some students had, and that he believed lower academic standards compared to Australia would have an impact on students’ economic advancement.

### *Practice*

The classroom practices of the participants was greatly affected by the Cook Islands culture and the available resources, and they had to be adaptable and flexible in their teaching.

### *Adaptability*

One of the greatest challenges that the interviewees identified was the lack of teaching resources, especially information and communications technology (ICTs), compared to what they had in Australia, and the need to improvise when particular resources were not available. Chris discovered that he was more flexible and creative than he thought, and Lorraine realised that she didn’t need a great deal of technology to be effective. She said that she was forced to look more closely “*at how children learn without [ICTs]. [They are] not as necessary as we think they are...I had to look at how these students could be engaged...It came back to your authentic self – how do you engage students? What are they teaching me that helped me to understand how to be a guide, a shaper or a facilitator?*” Sophie described the lack of resources that she was used to as “*exciting, [I was] forced to be more creative and draw on other experiences...I enjoyed making do with what we had.*” She found that she was able to develop specific activities and to do “*more individualised teaching. I was able to improvise with naturally occurring materials [and] I loved the resourcefulness of it. Being forced to think outside the square and to think quickly.*” Similarly, Ann had to be flexible and adaptable when teaching science to students in classrooms with minimal equipment and access to ICTs. Although she found the situation “*confronting*”, it didn’t impact on her core beliefs about teaching, but rather confirmed her belief that “*we think students need things to understand concepts, but that isn’t necessarily true.*” Katharine stated that “*having to rely on my own creativity with lesson plans, and being able to adapt to the forever changing classroom conditions improved my classroom management, time management and general lesson planning abilities.*”

### *Inclusivity*

Learning with and from students from different cultural and linguistic backgrounds, and dealing with a wide range of abilities in each classroom, prompted the pre-service teachers to identify inclusivity as a key to their teaching in the Cook Islands and in their future teaching practice. Lorraine, Ann and Sophie stated that working in their Cook Islands classroom helped to bring much of the university ‘theory’ about inclusivity into practice, and that the challenges they faced in the classroom helped them to develop strategies for catering for the diverse learners they taught. Sophie used the opportunities to particularly challenge the higher ability students to achieve more. “*I want to push the boundaries, try new things, and learn from [the children].*” The pre-service teachers were challenged to incorporate the children’s culture into activities so that their learning was grounded in their own community and ways of knowing.

For example, at Lorraine's school the theme was 'Cultural Bio Diversity' and she was able to incorporate teaching about the solar system into this cultural knowledge. *"I spent [time] within the Year 2 classroom observing and learning about culturally based activities. I was fortunate to be invited to speak about the solar system and investigate its cultural and bio diverse properties relevant to this...Cultural learning and teaching moments like these remain with me and are important learning curves, for my authentic development as a teacher."*

## Discussion

Data from this study suggested that immersion in the Cook Islands culture had a profound effect on the learning of the participants in this study. There was strong evidence that they learned not only about teaching in different contexts, but perhaps more importantly, about themselves as teachers now and into the future. The pre-service teachers learned about Cook Islands culture and its impact on learning, and they gained insights into teaching students of diverse cultural and linguistic backgrounds, which brought to life many of the theories that they had learned at university. One of the greatest impacts on their learning appeared to be the sense of being valued as co-learners and co-teachers in a supportive educational community. The welcome that the pre-service teachers received at their schools, and the support they received from each other, was a significant dimension of their professional learning during the placement. As Brindley et al (2009) and Izadinia (2013) pointed out, the role of a supportive school community, which included the community of pre-service teachers taking part in this practicum, provides an essential foundation for their learning and risk-taking, and their ability to push the boundaries of their learning.

The pre-service teachers in this study all commented that they were pushed out of their comfort zones, and that they learned a great deal about their own capacities as teachers. Having to 'think on their feet' and be more creative and flexible than usual was a key impetus for their learning. They had to rethink their assumptions about what material resources, including ICTs, were necessary to teach concepts and skills, and to consider how Cook Islands children can and do learn. This highlighted for them the importance of students' sociocultural background in learning. As Brindley et al. argued, the value of study abroad programs includes the opportunity to learn about "community, responsibility and management in the classroom, the meaning of a broader curriculum, the role of technology and the universal characteristics of children" (p. 530).

The Cook Islands experience also had a strong impact on the participants' sense of self, their beliefs and values, and self-efficacy as beginning teachers. They were required to look to the essential learning and teaching relationships they had with students and teachers in their classes, and to the resources that were available to them at any given time. The pre-service teachers came to see the learning potential of the natural environment, the local culture, history and language, and the resourcefulness that was within them but previously not always challenged in the same ways. Managing these challenges provided a boost to their confidence, as they began to gain a greater sense of self-efficacy as teachers. As several of them mentioned, the Cook Islands experience validated their decision to pursue teaching as a career, and provided important affirmation for their evolving philosophies about what constitutes good teaching and learning. As Brindley et al (2009) found, the study abroad program also gave them

the time and space, away from busy lives of study, work and family commitments, to think and reflect on learning and teaching, and to ponder questions such as those raised by Beijaard, Meijer and Verloop (2004), that is, “Who am I?” and “Who am I at this moment?” (p.108).

## Conclusions

The opportunities for learning that were afforded by the Cook Islands practicum are not unique to this particular teaching context, as all professional placements offer opportunities to learn about learning, teaching, children, communities and being a teacher. However, the nature of this particular practicum, where participants are immersed in a new and particularly open and welcoming culture every day for three weeks, allowed the influence of the sociocultural context to become infused into their professional learning in ways that are less likely in a placement in their home context. The immersive nature of the placement, and the challenges it provided for pre-service teachers to step outside their comfort zones and to forge new perspectives on learning and teaching, were an important part of their teacher education experience. Although the small number of participants means that the findings from this study cannot be generalised too broadly, the data provides an insight into the potential for professional learning on international placements, and further highlights the importance of the sociocultural contexts in which pre-service teachers learn to become teachers. It was clear that a supportive learning community was essential in the learning of the pre-service teachers, and that being seen as co-teachers and co-learners was of particular importance. This is the challenge for teacher educators leading international practicums, that is, to create a community of learners within the group of pre-service teachers as well as among the host teachers and others in the local community. It is also important to capture this learning during and if possible after the placement through activities such as regular debriefing sessions, journaling and larger research projects.

This has implications for how professional learning during teaching placements in any context might be managed, and highlights the importance of approaches to mentoring that situate pre-service teachers as teaching colleagues, and that empower them to take risks and venture outside their comfort zones in a supportive environment. It also highlights the importance of community resources for teacher learning and for placements that are situated within the pre-service teachers’ home environment, how the role of the local community might be utilised more fully to support their learning. Further research that includes a greater range of pre-service teachers, including those who do not have such successful placements, will also contribute to greater knowledge about the learning opportunities afforded by international placements and how these can be harnessed by teacher educators as an integral part of a rich and diverse teacher education program.

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## Part Three

### Educational leadership – leading learning

‘If your actions inspire people to dream more, learn more, do more and become more, you are a leader’ (John Quincy Adams). In every classroom a teacher is leading learning; influencing others’ capacities to affect and sustain positive outcomes for learners; collaborating and cooperating to solve educational problems and to design innovations to impact student learning. In every educational institution (e.g., school, early childhood centre, university) a positional leader such as a principal, head teacher or dean, is garnering the personnel, community, material and financial resources to create a culture in which growth thrives.

Questions which challenged the authors in this sub-theme of *Teaching for tomorrow today* were: How do positional leaders, teachers and community members build effective partnerships to lead learning? How can positional leaders and teachers create a culture that is simultaneously coherent and innovative? How can positional leaders foster enrolment of teachers in on-going professional learning? How can teachers be encouraged as leaders of learning without shifting them into administrative or management positions? How do leaders enact advocacy roles when faced with accountability movements, increasing performance pressure and more competition?

## Teachers' learning: Interventions based on previous teaching experiences

*Helene Bergentoft*

The University of Gothenburg

This chapter is about how teachers' knowledge about student learning and lesson design of a specific content can be evolved through teacher collaboration in a cross-school setting. The learning content is illustrated with learning about body posture whilst running in the subject matter Physical education and health at grade 12. Students learning opportunities differ between classrooms and schools (OECD, 2007; Pianta, Belsky, Hours & Morrison, 2007; Raudenbush, 2009). Classroom practices are one of three identified key areas to regarding equity in education (OECD, 2007). Knowledge of best instructional practice is a mean to achieve educational equality (Raudenbush, 2009). The use of a system that centers on the creation of shared instructional product that guides classroom teaching is one way to solve the problem of variation in educational quality from one school to another (Morris and Hiebert, 2011). Learning studies is one model for such a system, since focus of the model is on constructing knowledge concerning objects of learning as well as teaching-learning relations (Holmqvist, 2011; Lo & Marton, 2012).

The aim of this chapter is to describe how mediated means are shaped and aggregated into activity during a school development project where learning study is used as a model.

The research questions asked are:

1. In what way can variation theory be used as mediated mean to design lessons?
2. How do the theoretical conjectures as mediated means shape the activity?

### Method

The main result presented presented in this chapter is based on a multiple case analysis from two previously analyzed learning studies (Bergentoft, 2014) based on the theoretical framework variation theory. These learning studies have been re-analyzed by using, mediated discourse

analysis, as an analytical tool. The unit of analysis is the mediated means and the analysis is based on Scollon's (2001) discourses in place, which enable the action or which mediated means are used by the participants in their actions.

### *Learning study and variation theory*

Learning study is a collaborative, iterative research model supplemented by a systematic theoretical framework premised on variation theory (Marton & Lo, 2005; Pang, 2003). The focus in a learning study is on how the intended learning can be best achieved and always takes an object of learning as the point of departure (Marton & Booth, 1997; Pang & Lo, 2011). A learning study consists of a number of stages: planning, implementing, observing/evaluating and modifying, which make out cycles of iteratively. The result from the first lesson is the foundation for the design of the next lesson to improve the effectiveness of student learning (Holmqvist, 2011). The students conduct pre- and post-tests so that the teacher group can evaluate how well students could transform the intentional learning object into practical action. The lessons are video recorded and transcribed in order to allow a micro analysis of the enacted object of learning. The test results are, together with the observation of video recorded lesson, indicators of what should be changed to the next lesson, to achieve a more fruitful way to present the object of learning to the students.

A conceptual framework, premised on variation theory with its fundamental principle, is used to design instruction and its conjectures are tested in the iterative process. According to variation theory, learning is always directed towards something; an "object of learning" (Lo & Marton, 2012; Runesson, 2006). Learning occurs through changes in what is discerned, resulting in a modification of the aspects in the object of learning that the learner focuses on (Pang, 2003). Each object of learning consists of many aspects, and all of these are not critical aspects. Critical aspects are necessary aspects in order to understand a phenomenon. A critical aspect consists of different features, for example, if species is a critical aspect, fishes, dogs and cats are examples of features of this aspect. On the other hand, if fishes are the critical aspect, examples such as salmon and cod are features of this aspect. Discernment, simultaneity and variation are key points in variations theory (Lo & Marton, 2012). "There can be no discernment without experienced difference, and there can be no experienced difference without a simultaneous experience of at least two things that differ" (Lo, 2012, p. 84).

What is going to be learned has to be varied against a background of sameness using patterns of variation that shapes a space of learning (Lo, 2012; Marton, 2015; Runesson, 2006). According to variation theory, contrasts help the learner to discern a particular phenomenon, generalization separates what is critical from what is not, and fusion helps the learner to see all critical aspects in relation to each other and to see the entirety of the object of learning (Lo & Marton, 2012). The aspects that are being varied, and what aspects that are kept constant can, according to Marton & Tsui (2004), either support or constrain learning. The use of variation theory creates a shared language of professional discourses, and creates thereby a platform for teachers to enquire about a specific object of learning (Holmqvist & Bergentoft, 2013; Lo, 2012).

### *Mediated discourse*

Mediated discourse theory (MDT) is a hybrid of different sociocultural theories focusing on mediated actions (Engeström, 2014). The analysis seeks, by using a broad range of theoretical and methodological perspectives, to keep focus upon the concrete, real-time social action. It is a unifying unit of critical discourse analysis, interactional sociolinguistics and linguistic anthropology of the way mediated actions are shaped by and aggregate into social and literacy practices over time (Scollon, 2004). The goal in a mediated discourse analysis (MDA) is to understand an action's unique story in relation to the practices it relates to (Scollon, 2001). "Learning proceeds from social interaction through processes of social interaction to the reproduction on the intramental plane of human psychological structures" (Scollon, 2001, p. 9).

There is an unresolvable dialectic between action and the material which means that all social actions are mediated (Wertsch, 1998). Discourses in place involves to examine and discern which circulating discourses the participants interpret as relevant through the action. An action becomes a social action, that is a unique time in history in a unique place in the universe. Normally all social actions are based in tacit, non-conscious action (Scollon, 2001).

According to MDA the production of shared meanings are mediated by a very wide range of mediational means such as language, gesture, material objects, and institutions which are carriers of their sociocultural histories. These mediated means are always multiple in any single action, and carry historical affordances and constraints. They are also inherently polyvocal, intertextual, and interdiscursive. An action becomes social when it is communicated and a mediated action is only interpretable within practices. A central part of MDA is the way an action is related to past actions, discourses and actors, and how an act anticipates future actions. If you want to change the acting space, relationships or roles, it is according to MDA discourses that must be changed.

### Methodology

A multiple case analysis of two lessons, each from one of the two learning study projects, has been made to answer the research questions. The aim of the learning study projects was to develop teaching and learning about body posture whilst running in the subject matter physical education and health. In total, 95 upper secondary school students from two different schools participated. The study was carried out in 2012 and 2013. Seven teachers divided in two units participated in one study each. Variation theory was used and its conjectures were also tested in an iterative research model. The selected lessons for this chapter (named A and B) represent an extract from the two iterative school development projects. The two studies are linked since results from the first study were taken into consideration by the teachers in the second study, and the results were used in the new group of teachers and students to further develop the assumptions in the second study. Lesson A was the second lesson in a series of three, in the first learning study and lesson B was the first lesson out of two, in the second learning study. In lesson A 12 students participated and 11 students participated in lesson B. The results show that the learning outcomes in the second study increased more than in the first. The ability to use body posture increased in all five lessons and was closer to the optimum regarding running. The selected lessons had the largest improvement in each study. Lesson B:1 had the highest increase with + 2.1 of the mean value, the students show the most optimal placement of body parts and

reached a score of 4.6 out of 5. The detail of specific lessons for this chapter is illustrated in Table 1.

*Table 1.* Participants, content and result in the two lessons

Participants	Lesson A	Lesson B
Conducted	Autumn, 2012	Autumn, 2013
Teachers (F/M)	3/2	-/2
Students (F/M)	5/7	5/6
Lesson number	Lesson 2 in a series of 3	Lesson 1 in a series of 2
Content	Upper body posture whilst running	Body posture whilst running
Result from pre- and posttests	2.9 /3.6 out of 5 (+1.7)	2.5/4.6 out of 5 (+2.1)

### *Teaching activities*

The teaching activities were planned collectively and implemented by one of the teachers. The first activity in lesson A was performed in whole class in a classroom. Two contrasting film clips served as a starting-point to identify differences between different body part positions whilst running. At the next activity the students themselves experienced contrasting ways of placing the aforementioned body parts whilst running. Students would by themselves perceive differences of each body parts' position (head, shoulders, chest, arms and hip). Afterwards the students gathered in groups of five or six, to discuss how their running was affected by the special placement of the body part, and how it was perceived. This was repeated five times. In conjunction with the oscillation of the arms, the teacher identified the aspect of kinetic energy as a critical aspect. The teacher instructed the students to stand still and make the same movements as they did whilst running. At the end of the lesson, students gave peer response on each other's running style.

Lesson B starts like its predecessor in a classroom and the students' activity was to estimate their own running style in relation to what they believe is an optimal style of running. Subsequently the students went out to film each other as they ran, which would then become a new assessment of their own style of running. Thereafter they watched footage from a 1500-meter race of the men's World Cup final in 2013, to identify how the elite runners positioned their head, shoulders, chest, arms and hips, but also to make meaning of the elite runners' ways of running. Similarities and differences between themselves and elite runners were identified, regarding the five selected points. A whole class discussion followed, about the characteristics of an optimal placement of various body parts and to relate this to what effect it has on the running motion. The students' task was to try to develop their own races towards the optimal style of running, followed by a new estimate. As a contrast, students ran a lap where they basically did everything contrary to what they agreed is the optimal way to run. The teacher sums up the lesson by pointing out the importance of using the force of gravity and kinetic energy.

## Results

The results present an analysis of in which ways variation theory was used during the lessons as a mediating mean and how its conjectures as mediated means shaped the activities.

### *Object of learning*

The object of learning mediated a frame for the lesson. In lesson A this frame was too tight as it only treated the upper body posture whilst running, which resulted in the fact that some critical aspects were not afforded to the students. Before lesson B, the object of learning was widened to include the whole body, body posture, whilst running. The change of object of learning afforded the students a wider meaning making, of body posture whilst running.

### *Discernment of critical aspects*

The teacher in lesson A had initially identified the position of the body parts as a critical aspect for the students to discern out of the running motion as a whole. They used two film clips as an activity for this discernment, one film with an uneconomic and inefficient style and the other with a more optimal and economic style as a. The aim was to afford the students to discern the differences between placement of body parts such as the head, shoulders, chest, arms and hip and thereby make meaning of the way different body posture affect the runners.

Excerpt 1:

Adam: *He (film 2) held his arms close to the body at 90 degrees.*

Albin: *He in the first film moves arms very much like this [showing sideways oscillation] It takes a lot of energy versus him (film 2) who used the arms like this [showing arm oscillation in the running direction], which meant that he did not use so much energy.*

At this point the teacher was so focused on clarifying placement of different body parts, that he did not pay attention to the student who opened up kinetic energy as a new dimension of variation. The teacher just focused on clarifying placement of different body parts, as he did not pay attention to the student who opened up kinetic energy as a new dimension of variation.

When the second teacher group studied the results from the first learning study they identified, in excess of placement of body parts and kinetic energy, another critical aspect, center of gravity. They planned the teaching activity, to watch the footage from a 1500-meter race of the men's World Cup final in 2013. The activity was aimed to enable the students to see all these critical aspects simultaneously, to let them see how the elite runners positioned their head, shoulders, chest, arms and hips, but also to make meaning of the elite runners' way of running. Students saw 12 parallel runners with their personal style of running, which afforded a discussion of what runners do equally and what separates them.

Excerpt 2:

Billy: *Most have not relaxed shoulders, as they are in motion, they have to be tensed, their eyes are in the running direction. I do not grasp the hips, I do not see anything at all.*

Bror: *They lift abdomen and the whole body, the whole chest are moving, no one runs completely still with their upper body.*

Bent: *Many are slightly leaning forward, which you shouldn't do.*

The excerpt above shows that the students in the group discussion do not manage to discern the meaning of “straight” hip, kinetic energy and center of gravity and their interrelatedness, thereby these aspects ought to be mediated in a new activity.

### *Pattern of variation*

Pattern of variation was used as a mediated mean in the activities, to afford the students to make meaning of the critical aspect placement of body parts. The students afforded to vary one body part’s position (head, shoulders, chest, arms and hip) whilst keeping the rest invariant. The pattern was mediated through contrasting piqued hip with its opposite where the hip is stretched and pushed slightly forward, whilst running with all other aspects kept invariant. This activity was aimed to afford the students to make meaning of the body parts’ positions explicitly, through putting the critical feature, for example the hip, in foreground and by separating the parts from the wholeness. The subsequent activity, a group discussion, was afforded to make meaning of how their running was affected by the special placement of the body part, and how it was perceived.

Excerpt 3:

Adam: *I felt that my legs were limited so I could not stretch the step as so much.*

Albin: *The thighs had to work very much.*

Agnes: *But once you stretch yourself [pushes the hip forward] you get more bounce in your legs.*

During the group discussions, the students themselves mediated the dimensions of variations, since their experiences sometimes differed. To afford students to focus on identified critical aspects, and limit unwanted discourses, aspects not critical for the object of learning such as surface, terrain and running discipline was kept invariant in the background in both lessons.

### *Space of learning*

Dimensions of variations as mediated mean were mediated both by teachers and students. Tilt of the body (a feature of center of gravity) is an example of one dimension of variation that was mediated by a student in order to make meaning of the placement of the hip, and its relation to center of gravity and kinetic energy.

Excerpt 4:

Teacher 2: *The hip, what do you say about it?*

Birk: *It shall be pointing forward.*

Teacher 2: *The hip should point forward and be pushed forward, and it is affecting the body’s center of gravity. We want to push forward that as far as possible without tipping over (...)*

Birk: *Should you be straight in the back?*

Teacher 2: *Yes, if you stretch out the hip and push the chest forward the back will become straight.*

Birk: *But, you cannot run as straight as possibly.*

Teacher 2: *No, you cannot. If these points are in line [pointing at a picture of a runner on the whiteboard], and the whole body leans*

During the lessons, as described previously, various aspects have been mediated into the forefront of the students' awareness through the pattern of variation and invariance and this forms a space of learning. In lesson A the critical aspect was mainly mediated in sequences, in contrast to lesson B, which was to a greater extent characterized by simultaneous mediation of different critical aspects and features. To fully afford students to make meaning of the effect of different body parts' positions whilst running, it seems as critical aspects like kinetic energy and center of gravity, have to be mediated simultaneously with a movement. At simultaneously mediation of these aspects, they afford both sensuous and explanatory meaning making to the students.

## Discussion

Variation theory assumes that learning primarily involves qualitative changes in ways of experiencing object of learning (Pang 2003). Due to MDA discourses is to be changed in order to change the acting space, relationships or roles (Scollon, 2001), and this can be done by the use of different conjectures from variation theory as mediated means.

The results show that the concept 'object of learning' mediates a content framework, and its definition has impact on the lesson design as well as on students' possibility to making meaning of the content. Critical aspects as mediated means helps the students to see the object of learning in a particular way as well as it affords students to make meaning of important aspects. Patterns of contrast seem to be an efficient way to afford students to separate a placement of a specific body part from the body as whole. The use of pattern of variation (and invariance of the object of learnings' aspects) as mediated mean, is a way to shape activity that puts what is critical in the foreground of the students awareness. The results show that students as well as teachers can open dimensions of variations and thereby mediate a new critical aspect to the lesson. It seems important that teachers are responsive to questions asked by the students, as these often reveals misunderstandings and can help to open up a dimension of variation as mediated means to afford students to make new meanings of the object of learning. Teachers pinpointing of simultaneous variation of aspects that both is by sensuous and explanatory character afforded students to a wider meaning making of the object of learning.

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## Transforming teaching and learning practices in schools through effective leadership, partnerships and career sensitive professional learning

*Carolyn Broadbent, Maureen Boyle & Shelley O'Brien*

Australian Catholic University

New initiatives involving access to targeted professional learning opportunities are needed to assist teachers who, at the mid-stage of their careers, report feeling ill-prepared for the challenges of taking on higher leadership roles within schools. This chapter briefly presents the design, implementation and evaluation of a successful professional learning initiative being undertaken in Canberra, Australia, titled the Curriculum Leadership Program (CLP): *Transforming Teaching and Learning*. The CLP program brings together an employer body, a university, guest presenters and participants focused on facilitating a deeper understanding of the transformative power of effective curriculum leadership on the establishment of quality teaching and learning practices in schools.

It is recognised that any significant advances in teacher quality should be driven by the profession to ensure there is a firm commitment to the changes, progress in the development and implementation of the changes, and a wider recognition of the outcomes of these changes by relevant government instrumentalities and members of the wider community. This is particularly so for teachers, as good teaching, it is argued, emerges more from a teacher's commitment to high professional standards than from requirements imposed by others (Ramsey, 2000).

Educational institutions also need to work collaboratively and in innovative ways to enable teachers to be proactive, as well as responsive, to the educational and professional needs of their changing educational environments. In writing about the changing nature of school effectiveness and school improvement, Spillane, Spencer and Olin (2015) suggest there is a need

to move beyond individuals and their professional development, which can be seen to be limiting, to a deeper engagement with other people including, for example, parents and students, and with the overall school organisational infrastructure. Additionally, Patrick, Elliot, Hulme and McPhee (2010) place a strong focus on encouraging teachers to connect with each other to share their own best practices as a means of improving professional engagement where they take responsibility for becoming part of a supportive network for change. This process assists others to simultaneously deal with the fast pace of educational reform and to grow within it. Professional development opportunities delivered in contextual ways that promote ownership and lasting change are the key to successful growth for both the individual and the wider educational community in which teachers work.

Pivotal to the success of the Curriculum Leadership Program (CLP): *Transforming Teaching and Learning* has been the formation of a collaborative partnership that brings together a diverse range of participants. Essential to the process is the development of a close alignment between systemic priorities, teacher knowledge, values and understandings, and teacher registration requirements. Purposeful collaboration in the development of specifically designed career orientated professional learning, aligned with the Australian Professional Standards for Teachers (APSTs) at the Graduate, Proficient, Highly Accomplished and Lead stages of development, reinforces not only what teachers are expected to know and be able to do but builds effective communities of practice and increases impact (Wenger, McDermott & Snyder, 2002).

Timperley (2008) provides details of international research evidence that synthesises important understandings related to teachers who have received initial teacher training and are in the process of deepening their knowledge and refining their skills. These understandings indicate that student learning is strongly influenced by what and how teachers teach and that teaching is a complex activity. There is a need to create conditions that are responsive to the variety of ways in which teachers learn and that professional learning is strongly shaped by the context in which the teacher practises. Similarly, it is suggested, the CLP seeks to address these understandings in an Australian setting through collaboration and strong reference to the APSTs.

The APSTs clearly highlight the expectation that teachers will become mentors, as defined as a ‘more experienced person who supports and assists another person to grow and learn in their role’ and become involved in the mentoring of others (Smith, 2013). This is particularly relevant to early career teachers in their provisional registration period who are expected to receive mentoring from designated, experienced teachers who have undertaken mentoring training. Mentoring is also required, but not always accessible, for teachers advancing through the stages of Highly Accomplished and Lead. The CLP discussed in this chapter seeks to directly address this need through the provision of specifically designed professional development modules that support teachers’ advancement through these stages.

An interim report prepared in 2014 by the Australian Institute for Teaching and School Leadership (AITSL) indicates the APSTs are perceived to be of benefit in supporting the teaching profession, where 93% of school leaders and 81% of teachers agree with this proposition. The interim report, published in 2015, notes, however, that “professional development for both teachers and school leaders will be essential in this process as will be the

sharing of effective practices across and between schools” (p. 12). In this context, the development of the CLP is timely, and well suited to fostering quality professional development for teachers within the framework of the APSTs.

## Context

The development of the Curriculum Leadership Program (CLP): *Transforming teaching and learning* has been a collaborative endeavour between Catholic Education, Archdiocese of Canberra and Goulburn and staff from the Australian Catholic University (ACU) in Canberra. Initially, a small consultative working group comprising stakeholder representatives was formed to conceptualise and develop the CLP. In 2012, the CLP was considered favourably as a pathway for credit into the Master of Education course at ACU and again in 2015, after review and revision. The CLP has been well supported by all parties since its inception. Ongoing evaluative processes have provided a framework for review and modification of specific elements of the CLP to reflect and respond to current thinking, system priorities and participant feedback. Participants are able to enrol in the CLP (a total of 7 modules) as a professional learning program only, or undertake an additional assessment task for each module to become eligible to gain credit towards postgraduate study. Participants who successfully complete the CLP, the assessment task, and all attendance requirements are eligible to apply for one unit of credit into a Master of Education course. The program is suitable for current and aspiring leaders of curriculum including: Principals, Assistant Principals, Coordinators and Class Teachers. Participants undertaking the program for professional learning enrichment only, can attend any or all of the sessions relevant to their specific needs and those of their schools.

The teaching and learning modules are presented by suitably qualified and experienced staff from both Catholic Education and the University. The focus and content of the program includes the review of current research and developments in contemporary education and the completion of assessment and school-based research. Participation continues to be strong and details regarding participant numbers, school level and location are provided below.

*Table 1.* Participant data 2012-2014

Total number of participants completed full course	Male 14	Female 38	Total 52
School location of participants	Metropolitan 28	Regional 16	Rural 8
School sector	Primary 31	Secondary 9	CEO 1

*Table 2.* Number of schools involved in program

	ACT (Australian Capital Territory)		NSW (New South Wales)	
	Primary	Secondary	Primary	Secondary
Total number of schools who have had a least 1 teacher complete the course	15	1	10	1
Total number of schools who have had a least 1 teacher complete part of the course	14	4	12	4

Overall, 52 participants, 14 males and 38 females, have completed the CLP with 77 participants attending a minimum of one but less than six CLP modules as targeted professional learning. Currently there are 16 participants who have completed three of the seven modules offered in 2015.

### Program overview

The CLP: *Transforming teaching and learning* is designed to provide leaders in Archdiocesan schools with the knowledge and skills to lead school improvement through curriculum development and innovation. The program provides participants with the opportunity to investigate curriculum and pedagogy in a contemporary context and aims to equip them with the skills to build the capacity of their colleagues through leadership, professional development and school-based research. Specifically, the program focuses on:

- the use of the transforming teaching and learning framework to link practice to the school vision and mission;
- understanding curriculum development as a tool for school improvement;
- aligning internal school review and curriculum development processes and priorities; and,
- the use of the APSTs to promote excellence in teacher practice and curriculum leadership.

The CLP comprises seven modules, each of which has specific learning outcomes, teaching plans and related APSTs (Lead). Modules clearly outline the understandings, knowledge and abilities that participants should achieve as a result of engagement with the content. Key essential questions, as stated below, are the starting points for the delivery of each module.

### *Duration of program and contact hours*

Each module comprises a full day session of lectures and workshops with a time commitment of 6-7 hrs per workshop. Study time is required between workshops for preparation, academic and professional reading, and research related to the completion of the assessment tasks. It is expected that over the course of the program, participants will undertake a minimum of 150 hours to satisfactorily complete the Program. The CLP is usually offered annually between February and September.

### *Pedagogical approach*

An adult education approach (Mezirow & Taylor, 2002) is used throughout the various modules of the CLP to cater for the diverse needs of the participants who are at a mid-point in their career development. The teaching and learning strategies include:

- Collaborative and interactive workshops
- Online communication and resource portal
- Guest presenters with specific areas of expertise
- Authentic assessment tasks that link the APSTs with school leadership, curriculum development and innovative practice

Table 3. CLP Teaching and Learning Modules

Module 1: <i>Leading Learning in Catholic Schools – Creating New Realities</i>  <i>Vision and Mission – Philosophy of Teaching and Learning</i>	<ul style="list-style-type: none"> <li>• What is educational leadership?</li> <li>• How do educational leaders design and maintain environments where powerful teaching and learning are evident?</li> <li>• How do educational leaders engage all members of staff in ongoing and sustainable improvement?</li> <li>• How can the school community engage with the school mission and vision to identify and articulate the teaching and learning principles?</li> <li>• What is a Catholic Curriculum?</li> <li>• How does it enable students to make sense of life?</li> </ul>
Module 3: <i>Teaching for Effective Learning – Identifying and Embedding Key Pedagogies</i>	<ul style="list-style-type: none"> <li>• What are key pedagogies?</li> <li>• How are they organised by the school and used in classrooms?</li> <li>• How are key pedagogies validated?</li> </ul>
Module 4: <i>Implementing Curriculum – Linking pedagogy and curriculum</i>	<ul style="list-style-type: none"> <li>• Who determines what is in the curriculum?</li> <li>• How do we interpret the curriculum to meet the needs of all students?</li> <li>• How does Understanding by Design link curriculum, pedagogy and assessment?</li> </ul>
Module 5: <i>Developing Pedagogy – Inclusive practices</i>	<ul style="list-style-type: none"> <li>• What pedagogies support students to become successful learners, confident and creative individuals, active and informed citizens?</li> <li>• What are the diverse needs of the 21<sup>st</sup> century learner?</li> <li>• How are these needs met in the classroom?</li> </ul>
Module 6: <i>Assessing and Reporting – Assessment as part of the teaching and learning cycle</i>	<ul style="list-style-type: none"> <li>• Why do we assess?</li> <li>• How does assessment inform practice?</li> <li>• What is the pedagogy of assessment and reporting?</li> </ul>
Module 7: <i>Learning Environment – Organisation for learning</i>	<ul style="list-style-type: none"> <li>• How is the community involved in adding value to learning?</li> <li>• How are resources, documentation and the classroom organised for learning?</li> <li>• How do contemporary spaces and technologies influence curriculum and assessment in the learning environment?</li> </ul>

### Assessment

In consultation with Catholic Education staff, Australian Catholic University staff mark and moderate assessment submissions. This provides a valuable opportunity for staff from Catholic Education and the University to engage in cooperative mentoring, again building on the communities of practice model. All participants' assignments are assessed against criteria developed collaboratively and detailed feedback is provided. Achievement is recorded as: Accomplished, Satisfactory, Resubmit. As this is an accredited professional learning program, a grade is not awarded.

## Research methodology

In 2015, a decision was made to extend the regular ongoing evaluative process to develop a broader understanding of the impact of the CLP on the total cohort of participants who had been involved in the program. The research methodological approach chosen was that of a case study of a specific program within a defined location. The aim of the case study was to demonstrate, through a qualitative methodological approach, supplemented with some quantitative data, the effectiveness of the program in building capacity and creating a culture of excellence for school improvement.

For the collection of data, a Survey Monkey instrument was developed collaboratively by the University and Catholic Education staff and then opened to teachers who had participated in the program since its inception. The purpose of the survey was to capture the impact of the CLP on a number of specific foci including prior expectations on entering the program, and the way in which the program had impacted on personal development and professional outcomes, including career advancement. Underpinning the research process was the following research question:

*How and in what way does a collaboratively designed and implemented professional learning program impact on the personal and professional development of mid-career teachers?*

## Findings

A total of thirty (30) teachers completed the survey form, which used a variety of methods to collect data. This included closed and open ended questions, use of a Likert scale to determine the degree of agreement with a given statement and finally an opportunity for respondents to write personal reflections on their experience of completing the course.

The following statistical data and discussion provide details regarding the respondents' current experience and position held, analysis of their responses to a variety of given statements related to course content, and its impact on their personal and professional development at a mid-career stage. The personal reflections of the participants are included as additional information and clarification related to each question or statement.

*Table 4 . Teaching experience*

Years of service	% of cohort
1-5 years	3.33
6-10 years	10.00
11-20 years	50.00
21-30 years	23.33

Table 4 sets out the participants' approximate number of years in teaching when entering the CLP. As expected, only a very small proportion of early career teachers undertook the program while some 73% of the participants had been teaching for more than a decade.

Table 5. Position on commencement of the CLP

Position	% of cohort
Classroom teacher	33.33
Coordinator	36.67
Assistant Principal	16.67
Principal	10.00
Other	6.67

Table 5 provides details of the participants' position when entering the CLP. A high proportion of the participants entering the program were still at the classroom teacher or coordinator level even though many had spent considerable time within the profession.

Table 6. Prior expectations of participants (% response)

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
Deepen my understanding of curriculum, pedagogy and assessment (Teaching and Learning Framework)	3.57	0.00	3.57	53.57	39.29
Develop my capacity as a school leader	0.00	7.14	3.57	53.57	35.71
Consolidate my understanding of system policies and priorities in teaching and learning	0.00	0.00	10.71	67.86	21.43
Assist with my aspiration of becoming a system leader in curriculum and pedagogy	0.00	17.86	3.57	53.57	25.00

The purpose of this section of the survey was to ascertain the participants' expectations regarding the benefit of the CLP in relation to their current practice and/or position of leadership in the school. All participants expected significant benefits from their involvement in the workshops with a high 89% (Agree and Strongly Agree) expecting the CLP to consolidate their understanding of system policies and priorities in teaching and learning and similarly strengthen their role as a school leader. Overall, the commitment was strong across all indicators. Additional information provided in the open ended responses is presented below:

*It allowed me to further my understanding of leadership in regards to current teaching and learning practice.*

*I gained a deeper insight into the facets of being a Teacher Leader.*

*Within my current position, it (the course) enabled me to be seen as a more credible leader within the ACT system.*

Table 7. Outcomes of participation in the CLP (% response)

	Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
Increased my capacity to demonstrate curriculum leadership	0.00	0.00	14.81	37.04	48.15
Enhanced my knowledge and skills to support improvement in student learning outcomes at my school	0.00	0.00	0.00	57.69	42.31
Impacted positively on my relationship with the wider school community (e.g. staff, professional associations, parents / carers)	0.00	0.00	22.22	51.85	25.93
Developed understanding of APSTs	0.00	7.41	14.81	48.15	29.63
Professional learning linked to career path aspirations	0.00	3.70	18.52	55.56	22.22

There was general satisfaction across the various indicators in regards the value of CLP with 100% of the participants indicating they had enhanced their knowledge and skills to support improvement in student learning outcomes at their school. Also pleasing was that 78% of the participants regarded the CLP as providing targeted professional learning that aligned well with their career path aspirations. The open-ended comments below further highlight the value of the program.

*Allowed me to look at the school with critical eyes and plan a way forward in curriculum development, especially in the light of the new Australian Curriculum. Regarding the Australian Professional Standards for Teachers, it is important we develop a culture that demonstrates a high level of teaching and learning.*

Table 8. Impact of the CLP on personal and professional self (% response)

	Disagree	Unsure	Agree
Sense of well-being and confidence as a lead teacher	7.41	3.70	88.89
Professional identity and sense of self efficacy as a lead teacher	3.70	11.11	85.19
Ability to address my own and others specific professional needs	3.85	7.69	88.46

From the responses, there was a high level of personal confidence building, which augurs well for the institutional settings to which the participants returned. The additional

information provided below from the participants' open ended responses reinforces this observation:

*I am now able to write a school core teaching and learning document more successfully and with a lot more understanding because of this course.*

*I am sad that the course has finished. It certainly transformed me.*

*It was great to be able to work with colleagues during the course rather than working in isolation on an online course.*

*The impact of this course, in conjunction with the Masters element has convinced me that I am capable of undertaking further career challenges such as seeking promotional opportunities.*

When asked if the course had supported and/or advanced their career since completion 73.33% stated that this was the case while 26.67% responded negatively. In this regard, career advancement as interpreted by the participants could be largely to do with hopes and aspirations as well as actual promotional opportunities. A high number of the participants consider they now have additional support in their careers. Additional information provided below from the open ended responses reflects an increase in the confidence of the participants:

*I have moved schools to better my leadership opportunities and I believe that TTL (CLP) was the catalyst to do this. It opened my eyes to this possibility.*

*I can now speak with all levels of teachers from Graduate to Highly Accomplished with a sense of authority in the confidence of my knowledge base.*

*This course has led me to redefine myself as a curriculum leader in my current school.*

The high level of support for the program is clearly evident with 96.67% of the participants indicating they would recommend the course to others. The future for such workshops is secure as the need for them has been clearly shown. The open-ended responses provide further evidence of the value of the program:

*The course was excellent in its entirety – for me the right course at the right time.*

*I rave about it (the course) to everyone. It was just what I need at this time in my career. I am about to try and apply for leadership positions and was feeling like I didn't know what I was talking about. I feel much more confident in my understanding of pedagogy.*

Table 9. Reasons for participating in the course

Reasons	% of cohort
To further my career in leadership	63.33
To support my professional learning plan (PLP)	53.33
To gain credit towards my study for a Master's Degree	53.33
Following recommendations from others (e.g. Principal, colleague)	33.33
Other reasons	3.33

With all but 3% selecting the range of options presented in this question, the planning process has proved to be successful and the course content fulfilled forecast expectations about outcomes. The additional information provided below in open ended responses further supports this observation:

*Thanks for your work through the year on the TTL (CLP) program. I really enjoyed participating, and strangely, on reflection at least, enjoyed writing the assignments!*

*I am recommending the program within the College and hope that someone will take it up next year.*

*As someone who is beginning their journey into school leadership the TTL (CLP) course provided me with fantastic opportunities to help deepen my understanding of curriculum and more importantly how to bring about positive change in my school environment.*

## Discussion and conclusion

The high level of support, participation and achievement for this program is encouraging. From the responses received, it is apparent that senior teachers, including those in leadership roles within their school communities require ongoing professional learning opportunities that are highly relevant to their professional needs and career aspirations. The data reported in this analysis of a program designed to provide opportunities for learning with others provide strong evidence of the success of this strategy. Teachers' confidence and professional identity have been strengthened in a stimulating, career sensitive approach that has close alignment with the Australian Professional Standards for Teachers.

The significance of high quality professional learning and its relationship to improving educational outcomes for students in the 21<sup>st</sup> century has been acknowledged in many national and international contexts. The Curriculum Leadership Program: *Transforming Teaching and Learning* discussed in this chapter is based on maximising professional learning through professional conversations and increased collaboration within and across a number of school communities. This allows participants to engage in learning that is not only individual but 'social' as well (Cochran-Smith & Lyle, 2009). The continuing success of the program is evidence that targeted professional learning is well suited to the current needs of teachers, those in leadership roles, and the overall school communities where they work.

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## Communities as resources in early childhood teacher education: Engaging families' funds of knowledge through story

*Renée T. Clift, Maria Acevedao, Kathy Short  
& Richard Clift*

University of Arizona

In this chapter we discuss two important components of the redesign of an early childhood teacher preparation program that our department committed to completely redesigning in 2010. Sustainability was and is a primary goal of this redesign. Encouraged by our funder, the Helios Education Foundation, and by our own experience, we deliberately adopted a design-based approach to program reform (Cobb, Confrey, diSessa, Leher, & Schauble, 2003) as we developed working theories of how the redesign would impact teacher educator and prospective teacher practices. We interrogated our assumptions through ongoing data collection and analysis; we tested, refined and even radically changed those assumptions and collected data to test the assumptions once again. We begin our discussion with the principles that guided our curriculum redesign, followed by the challenges inherent in adopting those principles in practice and providing a close look at how one enacting one of the principles changed over time. We conclude with what we have learned about change and the challenges of sustainability over time.

### Program principles

Curriculum redesign that does not have a sense of unity and the acceptance of all stakeholders is unlikely to succeed (Fullan, 2007). We began our redesign by examining our commitments to working closely with our school district and community partners; our own research on teaching, learning, and teacher preparation; and the values we held concerning diversity, family involvement, and learning through sharing across cultures and communities through. From there we developed four guiding principles and chose a title for the redesign that

would signal our commitments: Communities as Resources for Early Childhood Teacher Education (CREATE). The principles have been refined and sharpened over time, but the underlying assumptions remain:

1. *Valuing the funds of knowledge within diverse cultural communities.* Our colleagues Norma Gonzalez and Luis Moll (Gonzalez, Moll & Amanti, 2005) have well documented the vast knowledge stores that inform everyday and more formal interactions within neighborhoods and communities. We acknowledge and celebrate the fact that we live and work in a culturally and linguistically diverse community. The families and students who live in our community have much to teach us about themselves, their heritage and their skills. Education, therefore, should not be viewed as a process of *fixing* individuals who come to school because their backgrounds do not match mainstream society. Education is a process of learning with and from one another's strengths.
2. *Encouraging story as a meaning-making process to understand self and world.* Based on the work of our colleague and coauthor Kathy Short and others (e.g., Short, 2012; Gottschall, 2012) we recognize that stories are time honored, cross-cultural ways of communicating who we are, what we know, can do, and believe. Stories immerse children (and adults) in the lives of people in diverse cultural communities to explore the multiple ways in which people live and think; they allow us to make sense of our own and others' worlds. They do so because story is a mode of knowing, one of the primary ways that our minds construct meaning and capture the richness and nuances of human life.
3. *Celebrating the significance of family literacies in literacy learning.* Our colleagues Iliana Reyes and Chris da Silva Iddings (da Silva Iddings, 2009; Reyes, 2006; Reyes & Uchikoshi, 2010) have long documented the importance of bringing the local knowledge of families into the classroom. Inviting family members to participate in instruction not only enables positive relationships among the family, their children and their children's teachers, it promotes student engagement and a climate for reciprocal learning. Teachers and teacher candidates who engage in community-based activities and in school-family-student literacy events, celebrating families' native languages and their multiple literacies create important opportunities to learn with and from the families who live and work in the communities served by the schools.
4. *Providing professional learning opportunities for educators across community, school, and university.* When teacher preparation programs are isolated from schools, when they consist of stand-alone courses that do not relate to one another., when they do not address issues of practice in relation to theories of learning, they are at best weak treatments or interventions. Our colleague and co-author Renée Clift has studied the relationship of teacher preparation coursework to field experiences and found that seldom were the two designed and conducted in tandem (Clift & Brady, 2005). Effective teacher education recognizes the importance of professional learning opportunities in which all participants learn with and from one another (Panel, 2010).

As we simultaneously discussed the principles with our school and university-based colleagues and redesigned our courses, course sequences, and assignments we realized that we needed a way to document what was and was not working within the proposed changes and

across courses and instructors. Following the design-based approach (Cobb, Confrey, diSessa, Leher, & Schauble, 2003) we documented our university based teacher educators' conceptions of and ability to enact the principles. We also documented the impact of selected curriculum changes on our students (teacher candidates) and their field-based mentors (supervising practitioners).

### Principles in practice

This section describes the slow, but steady progress of university-based teacher educators' abilities to understand and incorporate the principles into their instruction over three years and also presents a concrete example of how curriculum and activities related to the third principle evolved as teacher candidates began to listen and learn from children's and families' stories

#### *Teacher educators and CREATE principles*

We began our work by acknowledging that our former early childhood teacher education program was deeply flawed because it did not provide coursework directly related to learning from birth through grade three, nor were the field experiences designed to engage teachers, children or families in early learning centers—we had focused only on kindergarten through grade five. In addition, the instructors in the teacher preparation program were, as in many programs, teaching their own courses, with their individual syllabi.

Moving from concept to instructional practice to teacher candidates' learning is far more difficult than writing a proposal collaboratively. We quickly realized that without an understanding of or fidelity to the principles, there was no CREATE program—only a CREATE idea. Therefore, we collected data on the ways in which instructors came to understand the core principles and to incorporate them into instruction. A team interviewed teacher educators at the end of the first three years of the project and documented the progress toward incorporating the principles into course work and the curricular and professional development structures that enabled progress. This work is described in more detail in Robbins, Reinhardt and Clift (currently under review).

In the each of the spring semesters (2011, 2012, 2013) two graduate assistants—one involved with CREATE instruction and one not involved--interviewed every teacher educator about their experiences with the program. The interviews were de-identified, transcribed and coded based on key words from the interviews. With a faculty member, the assistants developed codes each year (based on the previous codes and on newly introduced key words), modified the next year's interviews to inquire more and more deeply into the instructors' understanding of the principles and, also, to gather their thoughts in the efficacy and potential sustainability of CREATE.

Virtually everyone involved in CREATE described the first year as confusing and frustrating because of poor communication across courses and instructors, and between the co-principal investigators and all other project participants. They knew that something was happening, that it was possibly important, but only a handful of people (typically those who wrote the proposal or those closest to them) could articulate what changes were occurring and why they were important. This information was fed back to the co-principal investigators—who then established regular meetings and charged an administrative assistant with overseeing

communication, monitoring overall organization, and managing the details of the budget. In addition, a curriculum coordinator was hired to map the current syllabi onto the first three principles; to look for unnecessary duplication in content; and to work with the Director of Early Childhood teacher preparation to plan and implement curriculum discussions and revisions across courses, semesters and years.

The interview protocol at the end of the second year was revised to inquire specifically about instructors' knowledge of and experience with each of the four principles, in addition to continuing to monitor instructors' perceptions of the curriculum change. The analysis of the interviews documented that the confusion and disorganization from the first year had abated. The analysis also documented that most people could explain the first principle (but only a few could give examples of how it featured in the curriculum and in activities in the field). Thus, the focus of the third year professional development initiatives moved toward helping instructors understand the third and fourth principles. The interviews also revealed that while instructors were engaged in curriculum articulation and in professional development concerning the articulation of the principles within courses, supervisors who worked with the teacher candidates during student teaching had been ignored. Those conducting interviews in the first year had not even interviewed the supervisors who, indeed, expressed feelings of confusion and isolation from the beginning of the project, which had not abated in the second year.

This information led the co-principal investigators to rethink supervision and the degree to which supervisors were isolated from the instructors and co-principal investigators. The curriculum was modified to include a year of intensive field practice in both years of the program—the first in an early learning center and the second in the early elementary grades. Every attempt was made to hire supervisors who also taught in the program and who could attend the monthly (often twice monthly) curriculum alignment meetings. In addition the project established monthly meetings at field sites that included teacher candidates, supervising practitioners, and university employed field supervisors.

The interviews at the end of the third year indicated that those who had participated in CREATE from the beginning perceived that the project was beginning to function as what many termed a "well-oiled machine." Many instructors were able to serve as supervisors, strengthening the links between coursework and classroom practice. Specific changes in the ways the literacy engagements were implemented (described in detail in the next section) resulted in instructors and supervisors having a much better sense of story, its connection to family and community, and its role in promoting learning.

At the same time, instructors and supervisors who worked in both early learning and elementary classroom settings reported that accountability pressures in the elementary classrooms sometimes worked against teacher candidates' opportunities to put one or more of the principles into practice. As we write this today, the fourth principle is beginning to hold more and more importance for the success of sustaining CREATE. Learning with and from one another continues to be a lynchpin to continuing to improve professional practice at all levels.

In summary, our interview data documented that CREATE moved us from a loose collection of courses toward an integrated *program* for prospective early childhood teachers. In other words, coursework, assignments, experiences in both early learning and K – 3 field

settings, and professional learning opportunities overlap with and build on one another. In the next section we examine closely two of the engagements that incorporate family, school assignments, and teacher preparation coursework and the impact of these engagements on teacher candidates' understandings.

### *Story and meaning-making*

While studying teacher educator's understandings is important, we also needed to know the impact that the curriculum was having on the learning of teacher candidates. We studied their responses to two engagements designed around story as a way to access family funds of knowledge and to develop global perspectives. These two story engagements were woven throughout university courses and professional learning opportunities with mentor teachers and teacher candidates.

In order to examine teacher candidates' perspectives, we created a narrative inquiry space through small group interviews around broad questions to encourage them to story about their experiences (Clandinin & Connelly, 2000). These small group conversations occurred at the end of each student teaching semester over a three-year period.

*Family story backpacks.* Our understandings of story as a culturally-based means of thinking led us to design *family story backpacks* as a transportable curriculum to facilitate the sharing of family stories. Ten backpacks were created around themes significant to families such as bedtime rituals, the origin of names, and birthday traditions. Each backpack contained three books (one informational global concept book and two stories), a related artifact, and a family story journal. Six backpacks were taken to each K-2 student teaching classroom and rotated among families on a weekly basis. Families shared their experiences in a family story journal and children shared from these journals when returning a backpack to the classroom.

Our analysis of the teacher candidates' perspectives was organized around four themes: conceptual understandings about story and funds of knowledge, strategies used in implementing and sharing in classrooms, views of families, and the influence of this experience on the values and beliefs as educators. Our analysis was used to make decisions about changes in our teacher education program for the following year.

In the first year, the interviews indicated a lack of conceptual understanding about family stories and funds of knowledge, deficit views of families, and struggles with organizational strategies in the classroom. Teacher candidates did not understand the purpose of the backpacks, seeing them as a way to practice reading, and so made the suggestion to add a backpack on dinosaurs instead of grandparents to interest boys. They were unsure how to negotiate with teachers and these struggles led them to question the value of this engagement. They told us that the journal entries were just "a lot of pictures about whatever, not anything to learn about a family" and complained that, "Our teachers gave us no support and said it was our assignment, not theirs." Many agreed that the "backpacks were just too overwhelming to do on top of everything else we had for student teaching and seemed like extra work in first grade because they already have reading activities and writing journals to take home every day."

Their stories led to major changes, such as integrating story and funds of knowledge more intentionally into initial coursework, scheduling professional learning time to facilitate negotiations between mentor teachers and teacher candidates, and encouraging a scheduled

time for children to share in classrooms. These shifts, especially giving children time to share when they returned a backpack to school, resulted in teacher candidates gaining important insights into family values and practices, which, in turn, led to stronger conceptual understandings, positive views of families, and valuing of the engagement. Teacher candidates talked about the backpacks as a “bridge between schools and home that allows students to bring their experiences with culture from outside of the school into the classroom.” Another teacher candidate invited families into the classroom, saying, “We shared first thing in the morning so parents and grandparents came in to present with the child. They shared what they did with the backpack and then the adult read the entry and the child told about the book.”

*From complaint to advocacy.* Encouraging negotiation led to the development of many new strategies, even in situations where the mentor teacher was not supportive, but also indicated the need for better university support, in particular from the university supervisors who regularly spent time in their classrooms. We made more changes to add professional learning time with the supervisors as well as more time for analysis of journal entries. A major increase in pressure from standards and testing the following year resulted in less flexibility in classrooms, but teacher candidates brought strong conceptual understandings and so advocated for spaces for children and families to share their stories. University supervisors played a critical role in negotiations with mentor teachers, but the need for more professional development with mentor teachers became evident as a goal for the following year. The shift in our curriculum and in the understandings and experiences of teacher candidates is striking across the three years, moving from complaints and misunderstandings to advocacy and reflection.

*Cultural community story boxes.* The second story engagement, *cultural community story boxes*, focused on specific global and local cultural communities, such as Mexican-American or Korean communities. Each box included 7-8 picture books and several artifacts to encourage play in response to the books. The teacher candidates selected several boxes to take to their student teaching with 3-5 year-old children. The first time we introduced the boxes to mentor teachers and teacher candidates, we watched as the local Southwest story boxes quickly disappeared, while most of the global story boxes were left behind. Global story boxes were selected only if children from those countries were in the classrooms; otherwise, they were viewed as not appropriate.

Our work with the story boxes involved gradually addressing assumptions by both mentor teachers and teacher candidates through different types of professional learning experiences over several years. These assumptions included the belief that young children can only understand if the explorations are directly connected to their lives and that explorations of difference are divisive and not developmentally appropriate. Another assumption was that teaching globally means teaching young children information *about* a culture, instead of developing open-minded intercultural perspectives and the valuing of difference as resource, rather than difference as problem.

*From assumptions to open-mindedness.* Gradually, the changes in courses and professional learning sessions led to the realization that young children can think globally by connecting to the everyday experiences of children in global communities as well as that young children continuously create understandings through attending to both connection and difference. For

example, when children noticed that mothers carry their babies on their backs in books from the East Africa story box, they made connections to how their mothers carry babies. They also began experimenting with different ways to carry dolls in the Casita center, using a piece of African cloth from that story box and converting a large purse into a basket to wear on their backs. Another realization that has occurred recently is that young children can play their way into new understandings by creating new experiences and connections.

In summary, our yearly interviews with teacher candidates created a narrative inquiry space that facilitated their voices and stories, which in turn challenged us to reframe our stories about our practice and to make important changes in our program. Narrative inquiry gave us a strategy for disrupting our dominant narratives as teacher educators and engaging in a process of learning and transformation. We were challenged to think *with* teacher candidates, not just think *about* their experiences. The stories that we tell and retell, live and relive, in teacher education have tremendous potential for shaping programmatic changes and for engaging with complexities in order to move to action.

## Discussion

Teacher preparation that crosses disparate educational settings can be described along a continuum of relationships that range from simple awareness to cooperation to collaboration to integration. In our view, teacher preparation programs are more effective when the communities involved collaborate and integrate with one another. Our data indicated that this is a slow, never-ending, but powerful process. In all of the above examples show, trying to make connections among teacher educators (whether at the university or in the field) and families was somewhat problematic at the start. A number of communities existed in mutual awareness of each other, but as CREATE began, the understanding of materials and tasks was minimal, as was input into their design and use.

The experience of working with the family story backpacks illustrates the importance of engaging all of the communities in preparing teachers. In the initial year the backpack assignment was an assignment required of teacher candidates. They were provided with the materials and even organizing schema to help make the implementation go smoothly and to provide wonderful resources in their classrooms. The school and parent community members, however, were only aware that the backpacks existed. They did not understand the purpose of the assignment nor did they feel any ownership of their use. Once the university-based teacher educators realized the problem, there was a more overt effort to include others in the conceptual reasoning for their use as well as participation in ways to make the backpacks meaningful. Therefore, when the cultural community story boxes were developed supervising practitioners and teacher candidates were both present at their introduction. While that, too, started with some hiccups, the learning from the family story backpacks reinforced the necessity of communicating with and involving all stakeholders.

As we move to sustaining CREATE we are beginning to realize the crucial importance of the fourth principle. As faculty and instructors move in and out of the program we must continue to educate newcomers (and ourselves) about the principles and how they are implemented in practice. Equally important is remaining aware of both the extent of our communities and the importance of engaging them collaboratively in their and our long-term

goals for teacher candidates and for young children. It is important to remember that a commitment to respecting everyone's funds of knowledge is important in all community settings. Without ongoing dialogue and instantiated opportunities for co-learning and co-professional development we cannot have a vibrant, cohesive program that is respectful of and responsive to all students and all communities. We have learned that the diversity present in our TA's and full-time instructors as well as our mentor teachers and teacher candidates provides a wealth of experience that will enable CREATE to thrive. We have learned that it is important to be aware that teacher education is embedded within a large nexus of communities. When these communities effectively engaged with one another, a "funds of knowledge" perspective became more broadly translated and practiced in our ongoing work.

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## **Leaders growing leaders: Effective early childhood leaders for sustainable leadership 'leading for tomorrow today'**

***Gülay Dalgiç, Debbie Ryder, Janis Carroll-Lind,  
Gwen Davitt & Sue Smorti***

The University of Auckland

Growing effective early childhood education leadership in Aotearoa New Zealand services for the future sustainability of today's leadership is the focus of this chapter, with an explanation of how effective leaders grow their own leadership development and that of their teams. The discussion will begin with a current examination of Aotearoa New Zealand early childhood education (ECE) as a leadership context. An exploration will then occur on the 'effective leader' terminology and how it influences the way leadership is currently portrayed. Looking to the future in ECE leadership involves providing sustainable ECE leadership development – this will be proven to be an area that is currently lacking. The chapter concludes by describing a research investigation currently underway, and its intention to offer a model of sustainable leadership that will assist tomorrow's leaders today.

In Aotearoa New Zealand the two main types of ECE services are teacher-led and parent-led services. Among teacher-led ECE settings are kindergartens, centre-based and home-based education and care services. Parent-led ECE services include playcentres, playgroups and Kōhanga Reo. Pasifika early childhood services can be both teacher and/or parent-led. Thornton, Wansborough, Clarkin-Phillips, Aitken and Tamati (2009) state that early childhood education in New Zealand, "while non-compulsory, is a partly public-funded education sector marked by its diversity" (p. 2). Although this diversity makes our ECE system unique, it is another reason why leadership within these contexts is difficult to define.

However, no one is disputing the value of leadership as it is recognised as one of the five key factors of quality ECE and school development (Education Review Office, 2011), Nevertheless,

it is only when leadership is effective that it is of value. But what does ‘effective leadership’ look like within the diverse ECE context? Siraj-Blatchford and Manni (2008) highlight *effective leadership* as having a significant effect on the achievement of children’s educational outcomes. New Zealand’s Education Review Office (ERO) describes ‘effective leaders’ as inspirational, enthusiastic and innovative thinkers [who]... manage change effectively, motivate others to make change, and have a good awareness of pacing change that leads to improved quality.

Whilst the Education Review Office (2010) emphasises effective leaders as being highly qualified and experienced with high expectations for staff and children, is this always the case? Are those people who are demonstrating effective leadership always the highly qualified, experienced members of the team? Current knowledge plays a key role, with the Education Review Office (2010) explaining how effective ECE leaders “have a sound, up-to-date knowledge of how children learn and develop” (p.4), which creates a foundation for high expectations for the teaching and learning environment, including ensuring continuous reflective practice in order to promote ongoing improvement. Effective leaders must also trust and empower staff, children and whānau in order to create an inclusive and collaborative community of learners (Education Review Office, 2010). Aubrey (2007) cites commitment to continuing professional development and support of the teaching team as contributing to effective leadership. An effective leader demonstrates the following qualities: “confidence to empower; enable and delegate; motivation and enthusiasm; willingness to celebrate existing achievements; communication and listening; mediation and negotiation skills” (p. 11).

The actions of an effective leader result in minimal staff turnover; a shared vision of practices, pedagogy and curriculum (Siraj-Blatchford & Manni, 2008) and promotion of an inclusive culture (Education Review Office, 2011). The inclusive culture includes the ECE learning community, where according to Rodd (2006) “effective leadership in the early childhood profession is about working towards creating a community and providing a high-quality service” (p. 24). An effective leader builds cohesion amongst team members by encouraging and modelling high trust levels (Education Review Office, 2010). From a curriculum perspective an effective leader models strong links between assessment and practice; encourages a culture of self-review and continued improvement of practice; works with the teaching team to have agreed priorities that lead to clear direction (Education Review Office, 2010). In addition, an effective leader encourages active involvement of parents/whānau within the teaching and learning practices to create an environment for learning, which is sustainable over time.

There is ample literature to define effective leadership, but definitions remain just that, if they are not put into practice. Aubrey (2007) argues from a UK context that ‘lack of status’ of early years teachers was seen as one reason for the concomitant lack of effective leadership occurring within ECE settings. This lack of status within the UK early years sector was found to lead to isolation and low levels of responsibility by members of the teaching team. Furthermore, this absence of status resulted in fewer professional learning and development opportunities for teachers. Although effective leadership is recognised as playing a major role in Aotearoa New Zealand for promoting the systems and structures needed to build the ECE learning organisation, most people in leadership positions have limited professional training

for leadership and administration roles (Thornton et al., 2009). In most cases leadership development is limited to role modelling of others and on-the-job learning.

Whilst leadership development qualifications are just beginning to be offered to the ECE community, if sustainable leadership development is to occur, it is to the ECE settings themselves, at this point, that we need to turn. Questions must be asked about the forms of effective leadership being modelled in ECE settings within Aotearoa New Zealand, and the factors that are restricting leaders from growing leaders within these contexts. Exploring effective leadership within an ECE context is fraught with limitations, not the least being the 'leadership terminology' employed. Thornton et al. (2009) suggest those people who hold acknowledged leadership positions are, perhaps, more easily identifiable within the schooling sector because leadership roles in ECE vary according to the diverse nature of provision. A range of titles such as manager, director, supervisor, senior teacher or team leader are just some of the titles used to label people holding responsibilities in ECE settings (Thornton et al., 2009). Two overall groupings of leadership responsibilities are evident within these titles: 'pedagogical leadership' and 'team leadership/management'. Previously, within this chapter, a number of characteristics of ECE leadership have been discussed. They are now re-visited in regards to these two groupings of responsibilities.

Pedagogical leadership is:

- Up-to-date knowledge of how children learn and develop, which translates into coherent expectations for the teaching and learning environment;
- Working within a shared vision of practices, pedagogy and curriculum;
- Modelling strong links between assessment and practice; and
- Encouraging active involvement of parents/whānau within the teaching and learning practices (Education Review Office, 2010; Rodd, 2006).
- Team leadership/management is:
- Ongoing reflection on practice of the teaching team;
- Encouraging a collaborative, inclusive culture of continuous improvement;
- Encouraging a culture of self-review;
- Confidence to empower, enable, delegate;
- Showing motivation and enthusiasm;
- Promoting an inclusive culture;
- Building cohesion amongst team members;
- Developing high trust levels amongst the teaching team; and
- Working with the teaching team to have agreed priorities that lead to clear direction (Education Review Office, 2010; Rodd, 2006; Siraj-Blatchford & Manni, 2008; Aubrey, 2007).

Sergiovanni (1998) explains why teachers are only accepted as pedagogical leaders when they are formally appointed with a leadership title (as cited in Heikka, 2013). According to Heikka, this strengthens the acceptance of designated leaders as being the ones who lead and manage the teaching and learning. However, in reality designated leaders may have limited impact on the teaching and learning, due to the team leadership/managerial tasks they have to accomplish (Heikka, 2013; Hujala, 2004). Therefore, although the designated leaders may think they are the

‘pedagogical leaders’ *and* the ‘team leaders/managers’, they might for instance not be the person who leads from a pedagogical perspective. Instead the pedagogical leadership could be being undertaken by someone who does not have a designated leadership position, but who is always working with the children and their families.

This challenge raises the need for more research as to who exactly is providing the leadership within ECE settings, and how those who are leaders are able to build leadership in others. Whilst there is extensive research on educational leadership in the compulsory education sector, leadership in early childhood settings has remained a relatively unexplored area of research (Ang, 2012; Muijs, Aubrey, Harris & Briggs, 2004; Thornton, 2011, 2014). The challenges that make research on ECE leadership difficult are multifaceted due to, as stated earlier, the unique characteristics of the ECE sector within Aotearoa New Zealand. There is increasing need for effective early childhood leaders (Ord et al., 2013) and for more research on early childhood leadership nationally (Fasoli, Scrivens, & Woodrow, 2007; Thornton, 2005; Thornton et al., 2009) and globally (Nupponen, 2005; Rodd, 2006; Siraj-Blatchford & Manni, 2008).

Acknowledging the leadership processes that effective ECE leaders use to develop, not only their own leadership, but the sustainability of leadership within their setting is crucial. The Education Review Office (2010) highlight the influence of leaders’ beliefs and values (both espoused and enacted) on the quality of education and care provided for children. The lack of formal ECE leadership qualification programmes within the ECE sector and the importance of developing leadership on-the-job underline the value of leaders developing themselves, and growing others as leaders with greater awareness, to successfully sustain and build on a leadership culture in their organisations.

### ‘Leaders growing leaders’: Current leadership research

The developing understanding of ECE leadership within Aotearoa New Zealand and awareness of the lack of leadership development programmes underscore the need to look to the future of ECE leadership development in this country. With limited research on what effective leadership looks like within ECE settings in Aotearoa New Zealand, we are proposing a nationwide investigation to explore current leadership development. From there a limited number of services (eight maximum) will be researched to examine effective leadership.

A case study approach will be adopted. The rationale for using case studies to explore effective leadership is twofold: (1) it will showcase examples of sustainable leadership within ECE services in Aotearoa New Zealand; and (2) it will highlight whether there are differences in the leadership practices of designated leaders, i.e., what they think they do, and what leadership practices actually occur. It is important to find out ‘who is doing the leading’? This research study will begin to explore, not only the processes that effective ECE leaders use, but the beliefs and values that underpin them. It is also important, for the development of leadership sustainability within ECE services, to explore whether the leadership practices that ECE leaders demonstrate match the beliefs and values they possess. In other words, we plan to explore the ‘espoused theories’ of effective leaders and their ‘theories-in-use’ (Argyris & Schön, 1974). Finally there will be an investigation into how the identification of leadership barriers can build capability and capacity within the ECE setting.

## Research questions

The main research question formulated for this study is: ‘What leadership processes and structures do effective ECE leaders develop in their services for the sustainability of the leadership culture?’

Four sub-questions that will answer the overall question are:

1. What professional learning and leadership development do effective ECE leaders undertake and how has it affected change in leadership practice?
2. What leadership actions (pedagogical, team leadership, and organisational) do ECE leaders take in developing others as leaders?
3. What are the ‘theories-in-use’ and ‘espoused theories’ used by effective leaders?
4. How can the identification of leadership barriers build capability and capacity within ECE services?

The study will be based on an emerging design of grounded theory. Systematic qualitative and quantitative procedures will be followed to generate a model or framework that explains sustainable leadership development in early childhood services. Creswell (2005) explains that “grounded theory generates a theory when existing theories do not address your problem or the participants that you plan to study” (p. 396). Thus grounded theory is suitable for research projects that aim to generate or modify a theory or explain a process (Creswell, 2005). No existing theory offers a feasible answer to the leadership actions and strategies that lead to success/effectiveness and continuous development in ECE services. There are, however, a few studies that focus on explaining leadership in ECE by developing a model or framework (Hujala, 2004; Kagan & Hallmark, 2001; Siraj-Blatchford & Hallet, 2013). Furthermore, the models explained in the existing studies are context specific to the country in which the research was undertaken. Early childhood education in Aotearoa New Zealand is unique with its diverse ECE services and bicultural curriculum. As the theory produced from this study will be grounded in the data collected it will provide a contextually appropriate explanation on ECE leadership in Aotearoa New Zealand more so than any borrowed model.

## Theories of action

One of the theoretical frameworks underpinning the methodology of this project draws on the work of Argyris and Schön (1974), who argue that people’s behaviour is guided by and can be explained by their ‘theories of action’. Argyris and Schön describe two types of actions: ‘theories-in-use’ and ‘theories-in-action’. Theories-in-use are led by people’s mental maps and the way people act as they do in situations. Mental maps shape people’s plans, implementation and review of their actions. Espoused-theories, on the other hand, consist of theories and beliefs about what people would do in a certain situation. People’s actions are governed by their theories-in-use of which they are mostly unaware and differ from the values and beliefs to which they aspire (Argyris, 1980). Therefore there is incongruence between theory and action. Argyris and Schön (1974) posit that:

When someone is asked how he would behave under certain circumstances, the answer he usually gives is his espoused theory of action for that situation. This is the theory of action to which he gives allegiance, and which, upon request, he

communicates to others. However the theory that actually governs his actions is his theory-in-use, which may or may not be compatible with his espoused theory; furthermore, the individual may or may not be aware of incompatibility of the two theories (pp. 6-7).

For the continuous professional development of leaders it is crucial that they first make their espoused theories and theories-in-use explicit and discover any inconsistencies between them. Reflecting on the inconsistencies between their theories of action, leaders can find answers for why they act in certain situations and how they can develop this (Dalgiç & Bakioglu, 2014).

### Māori research principles

Te Rito Maioha Early Childhood New Zealand has a commitment to *Te Tiriti o Waitangi* and the partnership between tangata whenua and tangata tiriti. In order to find and maintain Māori voice and identity, the principles of kaupapa Māori research, theory and practice (Smith, 1992) will underpin this study. The principles have since been developed by Bishop and Glynn (1999), and Pihama and Gardiner (2005). Kaupapa Māori principles of research provide a clear definition and understanding of authentic Māori knowledge, culture and research practices (Bishop, 1999).

Researchers aim to directly benefit Māori communities and participants in non-material ways, which Rameka (2012) maintains are “the foundations for ideas of ethicality along with the universal concerns for social sensitivity, protection from harm, informed consent, and confidentiality” (p.28).

### Pasifika research principles

The proposed research methodology is consistent with Pasifika Education Research Guidelines (Anae, Coxon, Mara, Wendt-Samu, & Finau, 2001) with its investigation of the aspects of ECE leadership within Pasifika ECE services and approaches most familiar and appropriate to Pasifika teachers, children and their families. Research must be underpinned by Pasifika values, knowledge and beliefs and where particular Pasifika communities are involved such as Samoan, Tongan, Cook Islands and Niuean then those distinct traditions, languages, histories, world views and identities must be respected. Accepting that research is never neutral or totally objective, the aim of any research carried out within Pasifika paradigms and epistemologies is primarily to articulate and reclaim Pasifika knowledge and values for Pasifika peoples (Anae et al., 2001, pp. 8-9). Consequently, research must be transformational as well as respectful; provide deeper understanding of the issues researched; address issues of social equality, as well as cultural and ethical questions.

Leadership is a term which is socially and culturally constructed and likewise in Pasifika communities a number of traditional practices and assumptions prevail that may appear contrary to dominant Eurocentric managerial models. Leadership is characterised by service and accountability to others in their Pasifika communities. It is often kin-based and characterised by collective collaboration, respect for age and experience and traditional cultural status. Increasingly, Pasifika leaders must operate intelligently and respectfully in cross-cultural situations where being fluent in their heritage language and cultural knowledge is important.

## Methodology

The study will utilise a mixed methods design in which both qualitative and quantitative research methods will be employed to answer the research question. Using mixed methods by means of triangulation can enable researchers to address more complicated research questions, collect complementary data, and conduct counterpart analyses (Creswell 2005; Yin, 2009). The logic behind triangulating qualitative and quantitative data in this study is based on Argyris and Schön's (1974) Theories of Action. Quantitative data collection will be adopted in phase one to obtain a national understanding of all forms of leadership development and the effect it has had on practice. Qualitative research will be adopted in phase two to explore what actions leaders take to build leadership in others. Qualitative data collection methods will also be used in the third phase where 'theories-in-use' and 'espoused theories' will be explored. Qualitative data collection methods will explore how identification of leadership barriers can lead to building capability and capacity.

A multiple case study design will be utilised to gather contextual data regarding leadership actions and strategies that advance leadership development in ECE settings. Case studies, which are useful in understanding depth (Patton, 1990) provide rich descriptions of particular instances of a process or phenomenon based on a variety of data sources (Yin, 2009). Multiple cases are very suitable to generate or modify a theory by means of replication logic (Eisenhardt, 1989). Eisenhardt applies *replication logic of multiple cases* to a series of related laboratory experiments. While laboratory experiments isolate phenomenon from their context, case studies provide a real-world context in which the process or phenomenon takes place. Therefore multiple cases can serve as replications, contrasts and extensions (Yin, 2009). Multiple cases enable comparisons among cases to clarify whether an emergent finding is only valid for a particular case or consistently replicated in several cases (Eisenhardt, 1989). Theory building from multiple cases provides more generalisable and testable theory than single case research (Eisenhardt & Graebner, 2007).

A survey composed of two parts has been developed. The first part has a focus on the aspects of effective leadership for leadership development and sustainable leadership. The second part of the survey has ten items revealing demographic variables (position of the designated leader, type of centre, gender, age group, length of time in ECE, length of time in the current posit, type of initial training, and additional training/qualifications). All ECE centres on the New Zealand Ministry of Education's (2015) data base will be invited to participate in the survey. The staff in these centres will be sent the survey electronically. The collected data will be analysed using the SPSS 20 programme for descriptive and parametric and non-parametric analyses.

In phase two of the research the 'designated leaders' will be interviewed to explore their 'espoused theories' (Argyris & Schön, 1974). Open-ended questions will allow participants flexibility in their answers. The rationale for this is to encourage participants to share their experiences and stories regarding leadership practices in their centre. The designated leaders will be asked to describe: their leadership approach; the leadership processes and structure within their centre; and their leadership practices that they believe are most effective for the sustainability of the leadership culture. In phase three of the research other centre staff will be

interviewed and asked: to describe the leadership processes and structures within their centre and what actions are taken by the leader and the other staff to sustain leadership development within their service.

In-depth interviews with team members and managers will enhance the trustworthiness of each case narrative (Glesne & Peshkin, 1992). Interviews will provide insight into how actions of their designated leader facilitate the development of their own leadership capacity and that of others. Semi-structured interviews with open-ended questions will be used to provide the opportunity for participants to think reflectively.

In phase three of the research the designated leaders will be observed over three one-day periods. The purpose of shadowing sessions is to enable the researchers to gain an insight into the designated leaders' day-to-day activities. This may involve a range of activities such as attending meetings, and observing interactions. The shadowing sessions should take between three to five hours. There will be three shadowing sessions for each designated leader. The shadowing times will be decided by the host (designated leader) and observer (researcher) together.

A 'leader's journal of critical incidents form', adapted from Aubrey (2011), will be given as a hard copy and also sent as an electronic copy to each service's designated leader as soon as the data collection process starts. The leaders will be asked to keep a running journal of critical leadership moments, incidents or activities they encounter or experience over the week that the observations/shadowing sessions occur. The aim of the critical incident tool is to support the leaders to reflect deeply on the critical leadership incidents and practices encountered so they may develop more awareness as to what is happening around them. This research tool will also provide evidence of 'espoused theories'.

At the time of writing, phase one of the research (nationwide survey) is about to occur and will provide an overall understanding of the types of leadership learning and development undertaken by ECE teachers. The survey will also recruit eight early childhood services across the country, that are geographically situated in areas in which our lecturer/researchers are based. We will draw on two kindergartens, two early childhood and care settings, one or two Māori-led early childhood settings and one or two Pasifika early childhood settings. Phase two and three of the research will see the researchers investigate what leadership actions (pedagogical, team leadership, and organisational) ECE leaders take in developing others as leaders; what 'theories-in-use' and 'espoused theories' are used by effective leaders; and how we can identify any leadership barriers to building capability and capacity within the ECE sector? The outcome of the research is to develop a model of sustainable leadership that enables the ECE sector to look towards the future of leadership for 'leading tomorrow today'.

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## School leaders' engagement in curriculum planning and decision-making

*Riaz Hussain & Meher Rizvi*

The Aga Khan University

Whether students are engaged in meaningful learning or rote memorization depends to a large extent on the way students' learning experiences are planned and executed in a school setting. A critical analysis of the policy and practice context in Pakistan, with regard to curriculum reforms undertaken by the successive governments and their implications for curriculum planning and decision making, reveals that the policies provided little flexibility for the school leaders to be engaged in the planning and decision making at the school level.

The new education policy of 2009 (GoP, 2009) identifies lack of involvement of teachers in education reform as a key reason for policy failures. It also recognizes that curriculum alone cannot cater for the diverse conditions in the education sector itself and the variations within the geographical breadth of Pakistan. In short, it recognizes the role of teachers in curriculum planning and decision making at the school level in order to respond to the diverse contextual needs of the students.

To initiate change from schools, it would be ideal to have freedom at the school level. Darling-Hammond (1996) reminds us that, "Ordinary schools can succeed in extra ordinary ways when they refocus their work on the needs of the students..." (p. 14). When the students' need for meaningful learning becomes a major curriculum goal, its attainment will obviously depend primarily on curriculum plans and decisions made by school leaders. Hence, the study reported in this chapter, explored different ways in which school leaders engaged in curriculum planning and decision making in schools.

### Dimensions of curriculum planning and decision making

Curriculum planning and decision making is a process of translating educational "images and aspirations" (Eisner, 1985, p. 128) into school programmes that will effectively realize the vision

that initiated the process. Based on the scope of this study and the contextual relevancy, four dimensions of curriculum planning are selected: goals, content, learning opportunities, and mode of presentation and mode of response (Eisner, 1985; Klein, 1991). A brief review of these dimensions is given below.

### *Objectives of teaching and learning*

Stating school purpose and formulating objectives to achieve it is an important step of curriculum planning. However, formulating goals and objectives is a political activity because it involves preferring certain goals and objectives over many others (Broudy, 1970).

Providing a field of action for all those who have a stake in the educational processes of schools, goal setting presents the major issue for school leaders to decide on which aspects of human life they take responsibility to guide (Saylor & Alexander, 1974). By virtue of their position, school leaders have to face this issue and take on the responsibility of curriculum planning and decision making.

### *Content to be taught*

Content selection is an ideological process (Apple, 2004). Content is defined as the subject matter of the teaching (Print, 1993). It includes knowledge, skills associated with knowledge (reading, writing, calculating, dancing, critical thinking, decision making and communicating) and values associated with what is learnt. Apart from guidance that can be taken from goals already set, school leaders may also consider the content's meaningfulness for students as criteria for content selection. Curriculum planners must respond to students' diversity by including a range of content options from which teachers and students can choose.

### *Learning opportunities*

Zais (1976) argues that, "Good intentions, fine goals and objectives, excellent content, flawless evaluation procedures, then, are all for naught if the learning activities in which students engage do not provide them with experience whose consequences are educational" (p. 350). Unless goals and content are not translated into events or learning opportunities, there will be no educational consequences for students. Eisner (1985) contends that this is the translation of goals and content into learning opportunities that draws heavily on the expertise of school leaders as curriculum planners.

### *Mode of presentation and mode of response*

Contrary to the traditional lecture method, research indicates that students have different preferences for the ways in which they receive information (Pashler, McDaniel, Rohrer & Bjork, 2008). The difference in the preferences of students for ways of receiving information provides a focus for teachers to think of modes of presentation tailored to student requirements.

Therefore, teachers should not restrict themselves to limited ways of presentation and students should not be restricted to limited ways of response. If curriculum planners have to offer equal opportunities to students and provide them a level ground to play, then they have to consider students' preferences and accordingly present what they develop as learning opportunities and expect student responses in their preferred ways of expression.

## Research methodology

We used a sequential exploratory mixed-methods design (quan → Qual) that consisted of two distinct phases (Creswell, 2003; Creswell & Plano-Clark, 2011; Tashakkori & Teddlie, 1998). Research started with a survey method followed by qualitative case studies. In this chapter, we report our pilot study data collected through a questionnaire to answer one of our research questions: What are the different ways in which secondary school leaders are engaged in curriculum planning and decision making in Chitral?

### *Description of the questionnaire*

The questionnaire was designed in light of the research framework. Items were developed in light of the literature (e.g. Eisner, 1985; Klien, 1991; Henderson & Gornik, 2007; Marsh, 2009; Saylor & Alexander, 1974; Print, 1993; Zais, 1976), personal experiences and insights from studies and questionnaires (e.g. Rizvi, 2003; Al-Daami & Stanley, 1998) in order to measure school leaders' current engagement in the four earlier discussed dimensions of curriculum planning and decision making on five point Likert scales.

### *Data collection*

The questionnaire was self-administered to 200 teachers and head-teachers selected from a randomized list of schools in Chitral district. Urdu<sup>37</sup> translation of the questionnaire was available for those respondents who chose it. Of the total questionnaires distributed 152 were returned.

### *Data analysis*

The items of each dimension were subjected to Principal Component Analysis (PCA) with varimax rotation method and Kaiser Normalization to determine the underlying structure of items that made up the engagement of school leaders in curriculum planning and decision making. This was done by grouping variables having moderate or high correlation with each other (Field, 2009).

Inspection of the correlation matrix for the four dimensions of curriculum planning and decision making revealed the presence of several coefficients of .3 and above. The Kaiser-Meyer-Olkin (KMO) values exceeded the recommended value of .6 (Pallant, 2005). The Barlett's Tests of Sphericity for the four sub-scales respectively reached statistical significance and supported the factorability of 152 cases of school leaders as an adequate sample size. Factors were extracted based on predetermined criteria.

## Results of the survey research

Tables 1 to 4 show the key extracted factors with their Cronbach's alpha values, item loadings and counts of views of respondents to these items. The loading columns of each table show that

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<sup>37</sup> Urdu is the national language in Pakistan and medium of instruction in many schools.

these items strongly correlate with their respective factors. For the purpose of this chapter, the 'agree' and 'strongly agree' views of respondents were collapsed together under one view of 'agree' assigned with a numerical value of 3. In the same manner, the 'disagree' and 'strongly disagree' views were collapsed together to form one view of 'disagree' equal to a numerical value 1. The uncertain views were retained as such but assigned numerical value equal to 2.

### *Objectives of teaching and learning (OTL) scale*

Based on the set criteria as described earlier, the principal component analysis of OTL scale produced four factors. The four factor solution explained 58.1 % of the variance with factor one, two, three and four contributing 31.4 %, 11.0 %, 8.5 and 7.3 % respectively.

Table 1 presents the factor solutions and frequency distribution of the first two factors which have emerged as more significant for the study.

*Table 1.* Dimensions of Objectives of Teaching and Learning (OTL) scale with loadings and counts of views of respondents

Factors				
Factor 1: Formulate and review learning objectives in the light of student needs and national standards (alpha =.807)	Loadings	Agree	Disagree	Uncertain
OTL13 discuss/reflect on the objectives of teaching and learning formulated for students to achieve	.744	135	8	9
OTL9 develop objectives for lessons in the light of the objectives set out in the national curriculum documents	.662	129	6	15
OTL2 formulate the overall aims of teaching a subject in the school	.648	136	2	13
OTL8 hold formal meetings with students to learn about their educational needs/interests	.593	127	6	17
OTL11 have the opportunity to sit together and review progress toward achieving objectives of teaching and learning	.592	136	8	8
OTL3 informally talk to the students about their learning/career interests	.585	138	1	10
OTL10 formulate teaching and learning objectives in terms of knowledge, skills and attitude	.502	121	7	22
Average %		87 %	4 %	9 %
Factor 2: formulate policies and education goals at the district level (alpha =.821)	Loadings	Agree	Disagree	Uncertain
OTL15 formulate policies for secondary schools in meetings held with district education officials	.874	79	27	43
OTL16 formulate educational goals for secondary schools in sessions organized under the supervision of district education office	.855	79	21	47
OTL17 have the opportunity to review district education goals in the light of the national curriculum goals	.690	90	23	36
Average %		54 %	16 %	28 %

Formulating and reviewing of learning objectives in light of the set standards has come out to be an important engagement activity for school leaders. Providing a stage for school leaders to choose from among many (Broudy, 1970), these standards are essential knowledge, skills, attitude, and guidelines as set in the national curriculum. Beyond their schools, though relatively less engaged, school leaders seemingly deem curriculum planning and decision making an important aspect of their work to engage in at the district level, a desire which teachers elsewhere also have expressed (Al-Daami & Stanley, 1998). Another important aspect of school leaders' engagement is planning an annual school development plan that enables them to create space for their involvement in curriculum planning and decision making. While engaging in all these planning and decision making activities, school leaders seem to take board examination requirements into account.

The 28 % uncertain response for items of factor 2 indicates some confusion in the minds of respondents. It may be possible for the respondents to have an impression that these items ask about involvement in meetings officially held with heads of schools at the district education office not the ones held with them when they (district officials) visit schools.

#### *Content to be Taught (CtT) scale*

The CtT scale on subjecting to PCA, produced four factor solution, explaining 57.8 % of the variance with factor one to four contributing 24.4 %, 13.3 %, 11.2 %, and 8.9 % respectively. The factors illustrate how teachers determine the content for students to learn (Grossman and Stodolsky as cited in Weiss et al, 2001) through engaging in a range of activities—developing curricular materials for teachers and students, modifying and improving on existing contents, planning and reviewing schemes of work and engaging in discussion on strengths and weaknesses of textbooks

Table 2 presents the first two factors. Thirty-two percent (32 %) of respondents in factor 1 have indicated involvement in preparing teacher guidebooks, student workbooks and textbooks. This is a significant number of respondents agreeing to these items. It may be possible that respondents have misunderstood these items taking them as curricular enrichment activities and hence this large number of agreeing views for these items. Another account for it may be that the provincial government of KPK<sup>38</sup> had recently invited experts and teachers from Chitral district to prepare Khowar<sup>39</sup> curriculum and related materials to be taught in schools. It would be interesting to further investigate this factor in the next phase of the study to know who was involved and how they were involved.

It is worth noting that statistics for items of factor 2 suggest quite a large number of school leaders (27% and 37%) restrain doing activities that are conceptual in nature like CtT3 (modifying course material) or involve budget like CtT6 (inviting guest speaker) respectively.

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<sup>38</sup> Khyber Pakhtunkhwa, formerly known as North West Frontier Province (NWFP)

<sup>39</sup> Local language of Chitral district

Table 2. Dimensions of Content to be Taught (CtT) scale with loadings and counts of views of respondents

Factors				
Factor 1: Participate in developing content/material for teachers and students (alpha =.921)	Loadings	Agree	Disagree	Uncertain
CtT15 have opportunities to participate in preparing teachers' guidebooks	.936	51	63	35
CtT14 have opportunities to participate in textbook writing	.890	46	85	34
CtT16 have the opportunities to participate in preparing student workbooks	.889	47	57	34
Average		32%	45%	23%
Factor 2: Modify and improve the existing materials (alpha =.687)	Loadings	Agree	Disagree	Uncertain
CtT4 welcome students to share material they find useful in the library or on the internet	.772	137	5	8
CtT1 consult books, magazines, newspapers or internet etc. to find supplementary material to existing textbooks	.714	120	13	18
CtT3 modify course material throughout the academic year according to changing needs of students	.655	110	18	20
CtT6 have the liberty to sometimes invite guest speakers who have expertise in a particular content area	.482	95	15	41
Average %		76%	8%	14%

### *Learning Opportunities (LO) scale*

Subjecting LO scale to PCA, four factors were produced. The four factor solution explained 54 % of the variance with factor one to four contributing 31.8 %, 8.4 %, 7.1 %, and 6.7 % respectively.

Table 3 presents the first three factors. School leaders appear to believe in the importance of co-curricular activities in student learning but they seem to be restricted in their choice of activities by lack of resources (Jenkinson & Benson, 2010). Lack of resources is a reality in most schools, at least in Chitral, that restricts students' engagement in co-curricular activities for enhanced learning. However, this lack of resources seems not to prevent teachers from encouraging and involving students in hands-on minds-on activities that can be carried out with available resources in school. For the purpose of providing useful experiences to students, school leaders engage in preparing teaching materials from easily available local resources. It is also important to note that school leaders engage in planning and implementing programmes to fill gaps found in the textbooks. Their prompt response to questions raised or gaps identified by students is noticeable. It highlights the importance of student engagement in their education for meaningful learning. The more they are engaged the more teachers become responsive to their needs for meaningful learning.

Table 3. Dimensions of Learning Opportunities (LO) scale with loadings and counts of views of respondents

Factors				
Factor 1: Plan co-curricular activities to supplement classroom learning (alpha =.817)	Loadings	Agree	Disagree	Uncertain
LO16 arrange educational video watching sessions for students	.808	62	34	51
LO17 have established different student clubs (nature club, literary club etc.) in the school	.794	78	25	48
LO18 have developed educational links of students with students of other schools within and outside the district	.681	76	31	44
LO15 organize educational trips for students	.655	106	11	34
LO19 make arrangements for students to contest elections to win student leadership positions in the school	.526	86	23	37
Average %		54%	16%	28%
Factor 2: Encourage and involve students in mental and physical activities (alpha =.773)	Loadings	Agree	Disagree	Uncertain
LO3 generate a discussion in the classroom as and when a situation presents this possibility	.741	142	3	2
LO9 think of activities during the delivery of lessons and implement them (on the spot) to involve students	.712	126	4	19
LO12 regularly organize co-curricular activities for students	.635	140	4	6
LO10 suggest activities for students to carry out at homes as they occur to them towards the end of a lesson	.567	135	5	12
LO13 discuss and share ideas regarding classroom activities with each other	.534	138	5	7
Average %		90%	3%	6%
Factor 3: Plan programmes to address gaps in the textbooks and student needs (alpha =.747)	Loadings	Agree	Disagree	Uncertain
LO8 know from their experience that what kind of activities can be carried out to teach a particular lesson	.778	142	4	5
LO7 make additional plans and implement to address questions asked by the students	.661	128	7	16
LO5 plan and implement programmes (e.g. about local plants, animals or culture) that are not sufficiently addressed in textbooks	.659	106	18	26
LO6 make additional plans and implement to address topics that may come from students	.520	93	18	38
Average %		77%	8%	14%

#### *Mode of Presentation and Mode of Response (MPMR) scale*

In the PCA of MPMR scale, four factors were extracted. The four factor solution explained 57.7 % of the variance with factor one, two, three, and four contributing 30.4 %, 12.4 %, 7.9 %, and 6.9 % respectively.

Table 4. Dimensions of Mode of Presentation and Mode of Response (MPMR) scale with loadings and counts of views of respondents

Factors				
Factor 1: Discuss with fellow teachers and students how to improve teaching (alpha =.757)	Loadings	Agree	Disagree	Uncertain
MPMR15 discuss among each other how to improve delivery of lessons in the classroom	.772	146	2	13
MPMR13 take students feedback to guide their planning and teaching	.739	137	4	11
MPMR17 have the opportunity to formally meet and discuss issues regarding delivery of a lesson in the classroom	.626	128	4	17
MPMR12 encourage students to ask questions	.576	146	0	4
MPMR11 sometimes set students questions and ask them to develop their own answers which is not directly found in the textbooks	.549	126	6	19
Average %		90%	2%	7%
Factor 2: Match methods to concepts for better teaching (alpha =.773)	Loadings	Agree	Disagree	Uncertain
MPMR9 teach some of the lessons through role play and drama	.837	108	11	31
MPMR10 teach some topics by performing a hands-on activity in front and having students watch it	.646	129	6	16
MPMR8 teach some of the lessons (e.g. about crops) outside the classroom	.616	107	12	32
MPMR4 assess student learning also through assigning them project work	.577	101	11	35
MPMR3 assess student learning also through posing problems for them to solve	.561	133	6	11
MPMR5 assess student learning also through organizing different competition events such as science and technology competition	.498	98	14	38
Average %		74%	7%	18%
Factor 3: Test student learning in conventional ways (alpha =.747)	Loadings	Agree	Disagree	Uncertain
MPMR1 give paper and pencil tests to measure student learning	.831	138	8	5
MPMR2 assess student learning also through questioning	.737	147	2	2
Average %		94%	3%	2%
Factor 4: Teach having exam requirements in mind (alpha=.605)	Loadings	Agree	Disagree	Uncertain
MPMR6 give lectures while teaching in the classroom	.768	112	14	25
MPMR16 have little time to discuss different ways of improving lesson delivery among each other	.674	87	24	38
MPMR7 write notes for students on important topics for examination	.601	121	10	19
Average %		70%	11%	18%

These factors (see Table 4) revealed that school leaders have, while engaging in planning, at least two things in their minds: meaningful learning of students and their scores in the examinations. For meaningful learning, they teach and assess employing innovative ways (factor 1 and 2) showing their belief that mode of presentation can be improved with insights from knowing what and how students respond. While for good scoring in the board examinations, they also employ conventional teaching and assessment (factors 3 and 4). School leaders seem to be carrying the tension between the two competing positions – the progressive and the traditional teaching approaches.

### Conclusion and implications

The findings are important with respect to the notion of school leaders' as curriculum planners and decision makers at school level. The results show that school leaders are not just implementers of curriculum through teaching textbooks in the classroom. Rather, empirical findings have illustrated that school leaders exercise their personal agency to adapt and enrich nationally developed curriculum in order to serve the meaningful learning purpose of the students. All findings of data analysis are in contrast with the way teachers and students in schools are viewed as mere consumers of textbook knowledge (Bacchus, as cited in Rehmani, 2006; Hoodbhoy, 1998; GoP, 1998). Though school leaders are not engaged in developing curriculum at the national level (at least those who participated in this survey), they build upon the national curriculum in many ways that makes them, in their own right, the re-developers of the curriculum that serves the learning requirements of the students well. It is important to recognize this status of school leaders as re-developers of the national curriculum. National curriculum policy makers need to acknowledge and provide due space for school leaders to engage creatively in planning curriculum at the local level. The findings highlight some of the stumbling blocks that prevent school leaders from full engagement in curriculum planning at the school level and beyond, providing an agenda for action to the policy makers and the programme developers.

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## Using the conjectures of a theoretical framework to enhance students' learning

*Joakim Magnusson, Ulf Ryberg*

*& Jenny Svanteson Wester*

The University of Gothenburg

The aim of this chapter is to, by a multiple case analysis of three different research projects, explore how theoretical conjectures are used by teachers in order to enhance student learning by instruction. The data used in the meta-analysis originates from three different research projects (Magnusson, 2014; Ryberg, 2014; Svanteson Wester, 2014) and represents different Swedish contexts and different objects of learning in mathematics. Case A is about proportional reasoning, case B is about the relationship between the graph and its derivative graph and finally the third case C, is about scaling of two-dimensional geometric figures. The learning study approach, which was used in all three cases, is described as a form of hybrid between the Japanese lesson study (Lewis, 2000) and an educational design experiment (McKenney & Reeves, 2010). A learning study is informed by a learning theory – variation theory (Marton, 2015) and has the aim to improve the students' learning. Through the learning study and its systematic and iterative approach (Marton & Tsui, 2004), the teachers planned, conducted, evaluated and revised lessons and during this process, patterns of variation were created and refined. The patterns were, based on the theoretical framework, created to make the critical aspects come to the foreground for the students and by that made discernable.

Learning study has been in practice for more than ten years. It has been found to have a positive impact on the students learning as well as on teachers' learning (Holmqvist, 2011; Runesson, 2009). Learning study has also been reported to have a positive effect on teachers' professional development (Holmqvist, 2011; Runesson, 2006).

## Theoretical based conjectures used to design instruction

In the studies analyzed, variation theory (Lo, 2012; Marton, 2015) has been offered as a tool both for designing lessons and for analyzing how the content is handled. Variation theory posits that our awareness has a structure (Marton, 2015) based on the idea that learning is learning of something, learning has an object, the object of learning. An object of learning has many aspects and the students will not be able to put their focus at them all simultaneously. What aspects the instruction should be focused on depends on the students' previous knowledge, and the aim of the instruction is to bridge the gap between how the teacher intends to make the students see the content and the students' way of seeing it. The patterns of variation regarding aspects of the content, aims at making the aspects, the students' have not yet seen, discernable and by that change their way of seeing of this specific content. Three patterns of variation are used to design learning situations, namely: contrast, generalization, and fusion in order to make sense of an object of learning (Marton, 2015). Different students may focus on different aspects and thus the students will see an object of learning differently. Runesson (2006) describes how aspects can be related in different ways, as part or whole or as figure or ground, i.e. what is in the foreground and what is in the background of the students' attention. Critical aspects, aspects the students have not yet discerned but need to discern to learn further, are to be found in the analysis of pre- and post-tests or by interviews with the students, in combination with results from research literature.

## Method

The methodological approach used is a multiple case study analysis (Stake, 2014). Data has been collected from three different learning study-projects in Mathematics. A learning study is a sequence of lessons which give the teachers and the researcher the opportunity to, in a systematic way, explore a certain pedagogical unit, i.e. the object of learning. The planning of the lesson is more extensive because there is both reflection and analysis of the lesson. The plan of the lesson will be revised and the new revised lesson is carried out in another class in a new cycle. Finding the critical aspects of a particular object of learning is important, it is a key for helping the students to see the object of learning in a more powerful way (Marton, 2015). For the teachers, to find these critical aspects, the group of students is the best resource. They can reveal the critical aspects by what they see and by what they do. In a learning study the teacher can find these aspects in a systematic way, for instance a screening of the students' initial knowledge is made before the teachers start to plan the first lesson.

During the learning studies in these research projects, the teachers have been introduced to variation theory, including how to create patterns of variation regarding critical aspects of the object of learning. They have been supervised by the authors of this chapter, whom in turn have been supervised by senior researchers at the university. This three-layer design of the research process has been used to verify the scientific quality of the projects. However, the projects as such were not initially implemented for a multiple case analysis; it was decided afterwards in order to find more generalizable findings between cases.

In total, 22 lessons have been analyzed to find out what theoretical conjectures the teachers have used to develop the students' learning. Case A included 53 students in grades 8 and 9 and

their teachers. The aim was to develop students' abilities in proportional reasoning. In case B, 68 students aged 17-18 years and their teachers worked with the relationship between a graph and its derivative graph. Finally, in case C, 45 students in grade 8 and their teachers participated. The aim was to make students understand scaling of two-dimensional geometric figures. In all three cases, the students were divided into three classes and their learning outcomes were captured by the teams via pre- and post-tests that took place before and after each new class/ cycle.

## Results

The aim of this chapter is to explore in what way theoretical conjectures can be used by teachers to enhance students' learning through instruction. The results show an increased learning outcome in all three learning studies. However, this is not what is of interest in this study, even if the results are used as background data. Instead, the analysis focuses in what way the teachers have used patterns of variation to enhance student learning. Therefore, the results initially present the learning outcomes followed by a presentation of the critical aspects found. Finally, what patterns of variation were used, and above all - in what way they were used, is analyzed.

### Case A – Proportional reasoning

#### *Student learning outcomes*

The results indicate that the students of the third class, which also was the last class in this Learning Study (Magnusson, 2015), were those who after instruction to the greatest extent could relate values, and make multiplicative comparisons between values in a flexible way. A majority of the students can for instance switch perspectives and choose between the ratio within and the ratio between proportions when solving proportional problems.

*Table 1.* The students' learning outcomes in Case A when the four tasks used in pre- and posttest are summarized.

	pretest	posttest
A1 (n=11)	13/44 (0,30)	27/44 (0,61)
A2 (n=25)	32/100 (0,32)	66/100 (0,66)
A3 (n=17)	28/68 (0,41)	55/68 (0,81)

These results will be discussed in relation to critical aspects and patterns of variation.

#### *Critical aspects*

The aspects identified as critical to discern among the participating students had all previously been described in previous research (Lamon, 1993). These critical aspects were also found by the teachers when the students were taken the pretest before the class during the learning study:

1. Being able to separate a multiplicative and an additive structure from each other.
2. Two ratios are to be considered in a proportion, namely the ratio within a composed unit and the ratio between composed units.

When working with missing value – or comparison problems - different computational strategies can be used. Depending on the problem or the values involved the teachers wanted the students to discern a variety of strategies during the study. Discerning:

3. Building up strategy, adding or subtracting several composed units.
4. Static proportionality, where the ratio between composed units is taken into consideration when solving a problem.
5. Dynamic proportionality, where the constant of proportionality is taken into consideration when solving a problem.

### *Patterns of variation*

The three planned lessons in the third learning study cycle differed from the previous three lessons in the first and second cycle. During the first and the second cycles several aspects co-varied in most lesson-modules. The co-variation of multiple aspects occurred due to the research team's focus on what the students should be familiar with regarding the tasks to be solved. Multiplicative and additive comparisons were made between volumes, weights, lengths and time for instance. The focus in the first two lessons of the third cycle was much narrower and involved multiplicative comparisons between numbers without units, represented by uniform figures. Discerning the critical aspect additive and multiplicative structures was for instance initially in focus. This is considered necessary if one should be able to reason proportionally. The students in the third cycle were given opportunity to discern the specific aspect intended by the teacher as this aspect varied while others were invariant. An increasing number of aspects, that the students previously had been given opportunity to discern, were thereafter simultaneously co-varied. This is in line with the assumptions of the theoretical conjunctures. This was not the case in the second, and especially not in the first cycles since the students were given fewer opportunities to discern specific aspects.

*Table 2.* Variant and invariant aspects during the introduction (the first lesson) of the learning object in each cycle.

sequence A	ratio	additive and multiplicative comparisons	ratio within and ratio between	computational strategies	forms of representation
A 1	v	v	v	v	v
A 2	i	v	i	v	i
A 3	i	v	i	i	i

*Table 3.* Variant and invariant aspects during the introduction of the last lesson in each lesson series

sequence F	ratio	additive and multiplicative comparisons	ratio within and ratio between	computational strategies	forms of representation
A 1	v	i	v	v	v
A 2	v	v	v	v	v
A 3	v	v	v	v	v

## Case B – The relationship between a graph and its derivative graph

*Student learning outcomes*

It should be noticed that the students had no experience of derivative graphs at the beginning of the first lesson in this learning study (Ryberg, 2014). It should also be mentioned that the students in one of the three classes in this study, the social science programme, takes fewer math courses during the upper secondary school and the programme normally attract students with lower mathematic skills compared to the other two classes, the technology and the natural science programme.

Table 4. The students' learning outcomes in Case B. Number of correct answers per question.

	Technology n=26	Natural science n=23	Social science n=19
Q1 Pre/posttest	0/16	1/9	0/1
Q2 Pre/posttest	4/20	3/22	0/17
Q3 Pre/posttest	6/15	2/17	0/12

All the three classes increased their learning outcomes. At a first glance, the progress seemed similar but it was just at the surface and some important differences were found at the pre- and posttest. At the tests, the students answered three questions and all answers were supposed to contain an explanation. A correct answer was not necessarily complemented by a qualitative explanation and in fact, there were significant differences concerning the students' explanations. These differences will later be discussed in relation to the patterns of variation used during the lessons.

*Critical aspects*

The critical aspects the teachers found the students needed to discern were:

1. The derivative can be seen both as a function as well as the slope at a specific point.
2. The relationship between the value of the derivative graph and the slope of the derived graph.

When designing the first lesson in the study (technology programme), the teachers put great attention to previous research results. As an example, students often assume a resemblance between a graph and its derivative graph (Nemirovsky & Rubin, 1992) but this misconception seemed to be subordinated to the second critical aspect. If the students had discerned the relation between the slope of the graph and the value of the derivative graph they no longer assume a resemblance.

*Patterns of variation*

All classes were offered sequences where the patterns of variation aimed to make it possible for the students to discern the relationship between a graph and its derivative graph. In several of these sequences, the aspects slope and value varied simultaneously whereas other aspects were kept invariant. However, there was one aspect that differed between the three cycles/lessons in

this learning study. In the first planned lesson, the form of representation varied via recurring comparisons between the graphs and the corresponding algebraic expressions. These comparisons were made deliberately in line with previous research results, which recommend that students should get the opportunity to interpret the meaning of derivative in different forms of representation (Hähkiöniemi, 2006).

Table 5. Varying (v) and invariant (i) aspects of sequence A.

Sequence A		Form of representation	Value	Slope
Cycle B <sub>1</sub>	Antiderivative	-	-	-
	Function	v	-	v
	Derivative	v	v	-
Cycle B <sub>2</sub> & B <sub>3</sub>	Antiderivative	-	-	-
	Function	i	v	v
	Derivative	i	v	-

When the posttests after the first cycle were analyzed the teachers drew an important conclusion. The comparisons with algebraic expressions had turned the students' attention to the differentiation rules. Instead of focusing on the relationship between the graphs they had discerned how the graph of the derivative could be sketched by using the rules of differentiation. To avoid this in the next lesson, lesson number two, all comparisons with algebraic expressions were removed. Also several of the graphs used in the patterns of variation were shifted, from polynomials to more complicated ones. Some graphs were drawn in a way that made comparisons with algebraic expressions impossible. When the entire learning study with its three cycles was completed, and the students' explanations at the posttests could be compared, it was obvious that the students in second and the third cycle, i.e. the second and the third classes, had discerned the relation between the graphs in a different way compared to the students which were taught the first lesson. Several of the latter identified a graph as a polynomial and then used the differentiation rules whilst the former put their attention to the relationship between the slope of the graph and the value of the derivative graph. The teachers' intention was a lesson with graphs in the foreground and a posteriori, how to achieve this became visible because of the theoretical conjectures.

## Case C – Linear and quadratic scaling

### *Student learning outcomes*

As background information, the students' learning outcomes were enhanced in all three classes who participated in case C (Svanteson Wester, 2014). Every class get two lessons each and these two lessons is a part of a cycle. The major qualitative difference in student learning is to what extent the students managed to discern the differences in change of length and area in the same figure simultaneously when scaling two-dimensional geometric figures. The students' overall results i.e. the students' increase their learning during this learning study is presented in Table 6.

Table 6. The students' learning outcomes in Case C. Pre- and posttest with maximum 9.

	Cycle 1	Cycle 2	Cycle 3
Pre/post test	n=17 2.4/4.6	n=17 2.6/6.5	n=11 1.8/7.7

The overall result also show that the highest increase was after the third and last cycle, and as the group of teachers were the same during this learning study, their collective work seem to be more refined during the process which points at a more refined way of using the conjectures at the end of the project.

### *Critical aspects*

Previous research has shown that a large majority of 12 to 16-years old students have a tendency to improperly apply a linear model when solving non-linear problems about the relation between lengths and area of enlarged and reduced plane geometric figures. A major deficiency associated with the passage from one-dimensional to two-dimensional units is linked to 'the illusion of linearity', an explicit belief in a linear relation between lengths and areas of similarly enlarged or reduced figures (De Bock, Verschaffel & Janssens, 1998). The students claim that if the length is two times longer the area is two times bigger. Based on previous research the teachers could make a pretest with tasks which correspond to the students' difficulties.

The aspects identified as critical were; (1) proportional imaging between and within images, (2) discernment of lengths in different geometric figures, (3) discernment of the change in length, (4) discernment of the change in area and in the second cycle in the Learning study, a student came up with the fifth aspect; (5) discernment of the relation between the change in length and the change in area. As the critical aspects are functions of each other, i.e. when varying one the others also vary, it was initially difficult for the teachers to have a systematic approach on how these critical aspects were highlighted and which patterns of variation to use.

### *Patterns of variation*

The patterns of variation that the teachers presented to the students initially were purposed to give the students the opportunity to discern a proportional image and after that discern lengths in the figure and the change of lengths, when a two-dimensional figure was enlarged or reduced. After that, the change of area was added without ignoring the change of the lengths, which appeared to be important. Both of these aspects should be kept in the foreground simultaneously. When these two were kept in the foreground and varied in three consecutive activities in the third lesson, i.e. the third cycle of the learning study; the contrast that occurred between these activities enacted a powerful pattern of variation. The contrast created between these activities opened up several dimensions of variation, which corresponded to the aspects that is seen as critical when it comes to understanding the concept of enlargement and reduction of two-dimensional geometric figures. The relevant aspects were in the foreground simultaneously in this pattern of variation; proportional image, change of lengths, change in area, various features of the aspect lengths in geometric figures and the relationship between the change of length and change in area. This efficient patterns of variation, which although were enacted in several steps,

may prove to be one of the reasons that the students in the third cycle, both could handle the upcoming task, with the pattern of variation in form of a fusion in a fruitful way, but also that they show increased learning outcome compared to the two previous groups of students, i.e. cycle one and cycle two. The instruction in the first two cycles did not have this systematic pattern of variation. Table 7 shows the scheme from one of these activities, i.e. in which order the critical aspects were highlighted and varied when scaling a rectangle. The terms v and i stands for variance and invariance in the respective aspect.

*Table 7.* The scheme of the pattern of variation regarding which aspect that varied (and when it varied).

The activity; scaling a rectangle	The meaning of a proportional image	Discern length	Discern change in length	Discern change in area	Discern the relationship between the change in length and the change in area
Step 1	v	i	i	i	i
Step 2	v	v	i	i	i
Step 3	v	v	v	i	i
Step 4	v	v	v	v	i
Step 5	v	v	v	v	v

The instruction in the third cycle also carried out even more moments of the teaching, compare to the other two cycles, where the different critical aspects were highlighted by pattern of variation. The students also got the opportunity to meet the critical aspects in different contexts (Marton, 2015), which here means that students in the third cycle was offered a greater variety of structured activities there the geometric figure varied more widely.

## Conclusions

In this chapter we have described how teachers use theoretical conjectures to design instruction aiming to enhance students' learning in three different areas in Mathematics. The result of the three cases says that certain patterns of variation and invariance, i.e. how teacher should highlight to varying the critical aspects on a background of invariant aspects, are important to pay attention to when designing lessons. In all three cases, the students managed to see the object of learning in a more powerful way. Through a learning study's iterative approach the teachers were given the opportunity to test, modify and refine the pattern of variation but even juxtaposing in which order the critical aspects should be focus on during instruction. The teachers in this project try to help the students to discern those critical aspects through sequences of patterns of variance and invariance. The results pointed out that the teachers needed to present carefully structured variation against a background of invariance. By enabling the students to discern and separate the various aspects, by letting them vary one at a time, in a certain order, the students became capable to see the object of learning in a more qualitatively developed way. The pattern of variation and invariance need to go through processes of contrast and generalization. This pattern of variation may imply in several loops. After these loops, it was enacted a pattern of variation when all the critical aspects were in the

foreground simultaneously, a fusion, which means that all the aspects are varying. The differences in the enacted patterns of variation reflected the students' learning in the answers they enter at the post-test and whether the patterns made the intended learning possible or not.

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## Quality indicators for improvement science by teachers as researchers

*Mona Holmqvist Olander*

The University of Gothenburg

There has been a tension between applied and basic research for a long time. Stokes (1997) questions the dichotomy by arguing research can be both fundamental and useful. He uses the example of Pasteur's quadrant to broaden the support for basic research, seeing utility as one scientific driving force. This is relevant for research in education and learning in schools as regarding what impact the results have on teaching and teachers (Swedish Research Council, 2015). If the actors in school settings do not find the research of relevance for their work, even if stakeholders find the results of high societal relevance, they will not develop or change what happens in the classrooms. In the last decade, the Swedish students continue to decrease scores on international tests like PISA, TIMSS and PIRLS (OECD, 2015). At the same time, a research review of relevant research for school praxis has been presented by the Swedish Research Council (2015). The review shows that research is mainly on or for teachers and based on an interpretive research paradigm saying little or nothing about what happens in the classrooms and how instruction or students' learning outcomes can be improved. University based research on education has a tendency to move away from the praxis so that is not labeled as 'school-development' which has less academic value. Working with research close to teachers in praxis is risk-taking for researchers and the academic career might be slowed down compared to colleagues who focus only on basic research. This is a seriously problematic situation for the improvement of learning and teaching at school as there is 'no curriculum development without teacher development', which Stenhouse stated more than 35 years ago (Stenhouse, 1980). If teachers do not find research results of relevance they search for development by searching for school developers based on other grounds than scientific. Instead of discussing how we value applied and close-to-practice educational research, there is a trend to argue that teacher should not be researcher or do research in their own practice. This is an argument stressed by the chair of the Educational Research committee at the Swedish Research Council (keynote speech 2014-

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*Author contact:* mona.holmqvist@gu.se

11-20) as well as researchers (Alwesson, 2015), a standpoint I question by showing the impact such studies can have on improving teaching and learning in school.

### Research models bridging the gap between research and practice

“Learning study” is based on “lesson study”, which is a model for improvement science implemented in more than 95% of Japanese public schools (Lewis, 2015; Lewis, Perry & Murata, 2006). However, in line with Lin, Schwartz and Bransford (2007) who discussed Hatano’s humanistic approach, we do not believe in applying a model from another culture without taking into consideration the cultural differences. This means we should be very careful when we try to borrow something about education from other countries (we can do so only after reconstructing it) (Lin, Schwartz & Bransford, 2007, p. 70).

Therefore, instead of applying lesson study into the Swedish school culture, the model has been reconstructed mainly regarding the theoretical base. As the teachers in the Japanese educational culture have been sharing instructional products for decades, they do have a common way of thinking about teaching, learning and instruction. This collective shared knowledge is not common in Sweden and the reason why the projects in Sweden usually starts with introducing a theoretical framework of learning before starting the process is to ensure the participants have a shared theoretical ground when they design, evaluate and revise lessons. Instead of improving teaching, Morris and Hiebert (2011) claim that the nature of teaching: ‘has remained remarkably consistent over the years’ (p. 5), while at the same time as the quality remains the same. To build improvements upon improvements over time is what differs between Japan and many other Western countries. Decreased results in Sweden are affecting all kinds of students, based on a combination of fewer students in the highest outcome group and an increase in the group of the lowest outcome group.

Educational design research (McKenney & Reeves, 2012) is yet another model used to improve practice, however it usually differs from the ‘plan-do-study-act’-model (PDSA) (Langely et.al., 2009), and thereby also lesson and learning study, which argue for short and rapid cycles of learning from practice to improve practice (Lewis, 2015): “A central idea in improvement is to make changes incrementally, learning from experience while doing so: “plan-do-study-act” (Berwick, p. 1184, 2008). Instead, design-based research is mainly a long-term and intensive approach, with an impressive data-collection over a long period (Herrington, McKenney, Reeves & Oliver, 2007). Learning study uses only the data needed to measure the intended development of the object of learning, i.e. data just enough to measure if the students have learnt the defined part of the learning goal afforded by the lesson. This is in line with Morris and Hiebert’s (2011) suggestions about the ‘just-enough-data’ approach (p. 8) used in multiple cycles of small tests of small changes in treatment, which can be replicated in multiple settings to reach a scientific credibility.

### Data sources and method

The essays included in this meta-analysis have all been carried out in the same research school for teachers who are still employed by their schools during the two and a half year long program.

The research school is in collaboration between Jönköping University, Stockholm University and Gothenburg University. As one of the members of the management for the research school I have closely followed the students' work as well as supervised them together with at least one more co-supervisor. Besides writing the essays, they have also taken courses (75 credits). The program in total is 120 credits. To guarantee the scientific quality in the projects made within the research school, a theoretical framework, variation theory (Holmqvist, 2011; Lo, 2012, Marton, 2015; Marton & Booth, 1997) was established early at the start of the program. However, the students were also free to include other theoretical frameworks, and to meet different theoretical perspectives and methodologies during their courses. The students were introduced to both qualitative and quantitative methods, and used mixed methods in their projects to triangulate their findings (Creswell & Plano Clark, 2011). The exam-projects are summarized in Table 1.

Table 1: An overview of the analysed essays

Teacher researcher	Subject	Subject area	Grade/s	Number of participants Teachers (T) Students (S)	Number of video recorded lessons	Tests
A Bergentoft, 2014	Physical Education and Health	Running	10	T=7 S=95	5	Pre- and post-tests of physical movements (180)
B Magnusson, 2014	Mathematics	Proportional reasoning	8 and 9	T=3 S=53	10	Talk aloud interviews Pre-, post- and delayed post-tests of task-solving (223)
C Ryberg, 2014	Mathematics	Derivata	11 and 12	T=3 S=68	6	Talk aloud interviews Pre-, post, and delayed post-tests of task-solving (204)
D Selin, 2014	English as second language	Communicating	8 and 10	T=15 S=107	7	Pre-, post, and delayed post-tests of oral communication in groups (132)
E Sventesson-Wester, 2014	Mathematics	Scaling	8	T=3 S=45	6	Talk aloud interviews Pre-, post, and delayed post-tests of task-solving (135)
Total				T=31 S=368	34	Tests (874)

The theoretical base was also searched for in the subject didactic research. All projects were based both on a general theory about learning as well as a specified theory in the subject matter. Rich descriptions of the research activities are made to describe the ecological validity. The results' predictability (Wieman, 2014) is assessed by analyzing how the results can be generalized 'within and across various social ecologies' (Cicourel, 2005, p. 291). Each essay has been subject to a rigorous per-review process in six steps; (1) the research plan has been discussed at a research seminar at the university, (2) the design of the study and the collected data have been discussed at several research seminars with researchers, supervisors and the management of the research-school, (3) the essay has been pre-reviewed by a team of researchers, (4) the final manuscript has been reviewed by a senior researcher to be accepted for examination, (5) an external opponent

has discussed the manuscript at the final seminar, and (6) the examiner has decided if the work did pass or fail the final examination for licentiate degree.

The method used in all studies is learning study (Holmqvist, Gustavsson & Wernberg, 2007; Marton & Tsui, 2004), an iterative process following the framework from improvement science plan-do-study-act (PDAS) (Langley, Nolan, Nolan, Norman & Provost, 2009; Lewis, 2015; Marshall & Mountford, 2013), and all projects are aiming to improve practice in collaboration with teachers as well as to contribute to the academic society. The theoretical framework/s have been used as guiding principles both by the teacher researchers and the teachers participating to analyze the students' learning and to design the lesson.

## Analysis

The meta-analysis is a multiple case-study analysis (Stake, 2006; Yin, 2014) of the licentiate essays, and has focused on four different indicators for what characterizes scientific work. The indicators are based on Lederman's (2007) features for Nature of Science (NOS), to be testable, replicable and leading to predictions. The indicators used in this chapter respond to the requirements of NOS (Table 2).

*Table 2: The quality indicators in relation to the features of NOS*

Quality Indicator	Testability	Replicability	Predictability
Ecological validation for predictive power			X
Generalization in theory	X	X	X
Cross-setting interventions	X	X	
Continuing professional development (CPD)		X	X

The multiple cases have firstly been studied each by each, then in relation to each other regarding four different indicators for quality. Each of them are found to be of importance separately but in this study are used combined to create a model for quality assurance in an improvement science taxonomy. The first indicator is ecological validation for predictive power (Hammond, 1998; Wieman, 2014), which aims to explore if the study is carried out in a natural setting and if the results of the study can be used to predict changes in the same kind of setting. The second is focusing theoretical assumptions and in what way they are used in the study to improve practice (Gutiérrez & Penuel, 2014). The third addresses, in what way cross-setting interventions or multiple cycles (Lewis, 20145; Morris & Hiebert, 2011) have been used and finally the fourth gives indicators for continuing professional development (CPD), which are explored to explain in what way the teachers continue their professional development beyond the project (Lewis, 2015; Morris & Hiebert, 2011).

## Results

The results are presented in three different themes to answer what characterizes the scientific approach in educational research projects lead by teachers; (A) the quality indicators, (B) the students' learning outcomes; and (C) context dependent and context independent findings. Below, in table 3, the analysis of the essays for each quality indicator used is summarized.

*Table 3: An analysis of the indicators used for each essay*

Teacher researcher	1	2	3	4
	Ecological validation for predictive power	Generalization in theory	Cross-setting interventions	CPD-indicators
A Bergentoft, 2014	Conducted in praxis A1. Asked for by the management A2. Asked for by the teachers	Variation theory: Subject based research approaches Published results: <a href="http://hdl.handle.net/2077/37784">http://hdl.handle.net/2077/37784</a>	Yes	Yes
B Magnusson, 2014	Conducted in praxis Asked for by the teachers and management	Variation theory: Subject based research approaches Published results. <a href="http://hdl.handle.net/2077/37219">http://hdl.handle.net/2077/37219</a>	No	Yes
C Ryberg, 2014	Conducted in praxis Asked for by the teachers	Variation theory: Subject based research approaches Published results: <a href="http://hdl.handle.net/2077/37569">http://hdl.handle.net/2077/37569</a>	Yes	No
D Selin, 2014	Conducted in praxis D1. Asked for by the teachers D2. Asked for by the management	Communicative Language Approach Variation theory Published results: <a href="http://hdl.handle.net/2077/37801">http://hdl.handle.net/2077/37801</a>	Yes	Yes
E Sventesson- Wester, 2014	Conducted in praxis Asked for by the teachers and management	Variation theory: Subject based research approaches Published results: <a href="http://hdl.handle.net/2077/37230">http://hdl.handle.net/2077/37230</a>	No	Yes

Table 4: Students' learning-outcomes from pre- and post-tests (mean values)

Teacher researcher	Cycle A1 Pre/Post	Cycle A2 Pre/Post	Cycle A3 Pre/Post	Cycle B1 Pre/Post	Cycle B2 Pre/Post	Cycle B3 Pre/Post	
A							
Bergentoft, 2014	2.7/4.1	1.9/3.6	2.1/3.3	2.5/4.6	2.4/4.1	-	
B							
Magnusson, 2014	13/27	48/83	40/71	-	-	-	
C							
Ryberg, 2014	10/51	6/58	0/40	-	-	-	
D							
Selin, 2014	0/9	2/6	1/10	10/10	4/9	B3.1 3/9	B3.2 8/15
E							
Sventesson- Wester, 2014	2.4/4.6	2.6/6.5	1.8/7.7	-	-	-	

Another indicator to use when evaluating the quality of research result, is if it is possible to generalize across contexts. Context-specific results are difficult to use to predict learning in new contexts, and therefore their scientific value can be questioned. The results of the studies are presented both regarding context-specific findings and context-independent findings (Table 4). Regarding the generalizable findings, theoretical conjectures have been used to define what parts of the content (aspects) were made discernible for the students. These findings are generalizable to new groups of teachers and students, under the same conditions as the original groups. The context-specific findings are more focused on random and uncontrolled conditions, but further studies have to be carried out to confirm the results.

## Discussion

Teachers as researchers, conducting applied educational research meeting traditional university research contexts, often find their applied research projects valued as developmental projects instead of as research projects. The questions about who does research where and why, and how practice and research can inform one another, are raised and discussed by researchers. The impact on practice as an indicator of quality and a lessening of the theory – practice gap is called for (Gutiérrez & Penuel, 2014; Lewis, 2015). This is not only a matter of posture in the definition of research as such. Shavelson, Phillips, Towne and Feuer (2003) have studied the movement of design studies in classrooms and criticized narratives as they do not guarantee scientific veracity even though they are true as such. As the results frequently are not replicable and generalizable across different contexts, the doubtfulness is grounded in how the foundations for scientific research are defined. I argue, in line with Stenhouse (1980) there is a way to improve teaching and learning at school by strengthening the teachers' theoretical knowledge. This can be done in collaboration between teachers, teachers as researchers and researchers at universities. The high learning outcomes of students' performances in Japan have been referred to as the

sustainable teacher collaboration at school (Stigler & Hiebert, 1999), but there is one more important aspect regarding what research that matters. During one of my own visits in Japan, I was told that the research colleagues in Education at Tokyo University were valued higher within the academy if they were frequently asked for by teachers or school leaders. This is very rare for researchers in the Western cultures, where the opposite is what counts. To design instruction based on research results is more demanding for teachers than instruction through the rhetoric of conclusions (Stenhouse, 1980, p. 1). Therefore there is a risk teachers, as well as the scientific community, might avoid this kind of research. The results of this review show how the indicators for scientific quality were met and how improvements were made. My conclusion is that we have to discuss what kinds of research we have to develop to improve teaching and research at school, rather than to discuss if it should be carried out by researchers from the university or scientifically trained teachers as researchers.

*Table 5: Context-specific respectively generalizable findings*

Teacher researcher	Context-specific findings	Generalizable findings
A Bergentoft, 2014	The development of the students' learning was more rapid in the second cycle, as a consequence of taking the results from the first cycle as a starting point when designing the next.	Seeing the body as a whole, and then focusing on the parts simultaneously, seem to be more powerful than affording to discern one part of the body. Contrasting different representations of body postures enhances the students' ability to discern the differences.
B Magnusson, 2014	The order the teachers introduced aspects of the content affected the learning process, as well as different problem solving strategies.	To separate multiple structures from additive and to discern the difference between the ratio within and the ratio between are significant aspects when learning proportionality.
C Ryberg, 2014	Differences of ability in students' learning-outcomes related to differences in study-program	Using different forms of representations (graphs and algebraic) to discern the meaning of derivate hinder the students' learning, while systematic variation of graphs was afforded during the lesson.
D Selin, 2014	The development of the students' learning was more rapid in the second cycle, as a consequence of taking the results from the first cycle as a starting point when designing the next. The teachers' learning process showed how they developed a curiosity to test different designs' impact on students learning.	Strategic competence can be taught. The aspects needed to be discerned to develop strategic competence are to identify the characteristics of the interlocutor to adapt language, as well as the direction of the communication (to invite, answer or refer)
E Sventesson-Wester, 2014	When the teachers invited the students to communicate more about the content taught, the teachers and students managed to develop patterns of variation in a more specified way, taking into account the students' beliefs to a higher degree.	To discern the differences in change of length and area in the same figure simultaneously when scaling two-dimensional geometric figures.

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## Teacher change in the midst of reform agenda: Reframing teaching using the Montessori approach at the elementary level in Karnataka, India

*Nandini Prakash & Tara Ratnam*

Indian Institute for Montessori Studies

Any setting for education does not exist in isolation. A class and its members are linked to the school and the larger community outside it, just like the organisms and other components in a small ecosystem are linked to each other and to the larger ecosystems outside it. Any initiative in education has to be studied keeping these links in mind. We are presenting one such study of an ecosystem undergoing some change, an elementary school, Sri Chamaraja Urs Boarding School (SCUBS), Mysore, Karnataka State, India and the effect of implementation of a Montessori initiative by Indian Institute for Montessori Studies (IIMS), in that school from June 2013 to March 2014. In this ethnographic, participant observation based work, we hope to bring out the dynamics of this initiative.

The school, consisted of children from a vernacular based background, faced the same basic issues as other schools in India – viz. the need to improve the quality education by weaning the children of the prevalent rote learning practices. [e.g., Annual Status of Education Report (ASER) 2013]; Kingdon, 2007; Sriprakash, 2010; Sarangapani, 2014; Sadgopal, 2004). The Montessori method had been in use in the kindergarten and grades 1 - 2 classes in this school for over three years, but it could not be implemented effectively due to constant teacher change. Children were aware of more activities than the teachers could deliver, for the teachers were new to the implementation of the Montessori method. This was the situation when Tara and Nandini decided to spend an academic year studying the impact of the Montessori intervention on the teachers, the students and themselves.

Montessori method is based on a comprehensive, child-centered, developmentalist philosophy in a concrete, pedagogical method (Whitescarver & Cossentino, 2008). This method encourages learner autonomy (Shernoff & Csikszentmihalyi, 2009; Murray, 2011) by providing self-correcting activities with specific materials. We had implemented this kind of education in other elementary schools, and obtained positive results. So we decided to try this in SCUBS, taking it to the next level.

A typical Montessori class contains pupils of mixed age, ranging from 6 to 9 years, belonging to grades 1-3. In the Montessori system, lessons (called presentations) are given to small groups of children, using specific materials for each presentation. Once the presentations are given, the children are free to repeat the activity according to their choice and the availability of the material. SCUBS had the required material, and children were grouped into two classes, each containing a representation of all three grades.

### Ecosystem at the beginning

When we began our initiative in June 2013, the existing Montessori class, for which 3 hours were allotted, and the traditional class were running separately. Physically, the front portion of the classroom was set up for traditional teaching in the afternoons, while the rear portion was used for Montessori activities in the mornings. However, teachers were not convinced about the value of Montessori method. They taught to the test and not with a focus on promoting conceptual development in the children as the following excerpt shows:

*Nalina: ...Exams came and we had to do revision.*

*Tara: How do you revise?*

*Jyothi: We have taught the lessons. Now we deal with question and answers, ... As for multiplication tables, they [children] repeat orally first and then write.*

*Tara: Don't you use multiplication board and control chart?*

*Charitha: No, we stick to the text.*

(07.29.13)

The teachers failed to see the difference between the process approach of Montessori for concept development and the traditional product oriented teaching which resulted in rote learning. So, they chose to remain with tradition and text as they were familiar with it. Our first challenge was to enable teachers to understand the Montessori philosophy and Montessori activities so that they could mediate them meaningfully to the children. At the same time, Nandini had to learn to conduct a research study of this initiative, so that she could present her work to the larger academic world. With Tara as her guide, we began this collaborative study.

### Literature review

The concept of the child-directed learning has been derived from the theories of educationists such as Dewey, Montessori, Piaget and Vygotsky. In India, 'Child-centered' programs have been introduced in schools under different projects such as Nali Kali in and Activity Based Learning in the Government schools of Karnataka and Tamil Nadu states, where teachers are expected to encourage independent learning in the students. But the curriculum in these programs is based on a syllabus and fixed timetable rather than on the needs of the

children (Sriprakash, 2011). Thus, there are very few studies on the effects of learner autonomy and teacher transformation in the Indian school context.

Over the last century, there has been a vast body of literature published about the Montessori Method in many countries and in many contexts, but a large proportion of it is not research literature. This lacuna is even more evident in the case of India. Montessori conducted many courses in India from 1939- 1948 (Standing, 1998) and these are continuing to this day. However, there seems to be very few published research articles on the Montessori method as it is practiced in India (Kimoto, 1999).

The Montessori method has acquired a 'classical' elitist bias in most countries, serving the affluent (Tefelnerova, 2011) using high cost materials and rigorous standardized training. Whatever information available about the outcome of Montessori, with regard to children's performance is inconsistent (Lillard, 2012). While Lillard asserts (2012) asserts that Montessori programs have to follow the classical method, 'with high fidelity' in order to give off the best results, our study shows that it is possible to achieve satisfactory progress even in a non-classical Montessori set up and in low SES situation.

Research available about Montessori teachers' beliefs deals mainly with comparing beliefs of different teachers about Montessori practices and the extent to which their practice approximates to the classical Montessori method (Daoust, 2004). However, we did not find any study of the effect of the introduction of Montessori method on teacher beliefs on ERIC Data base, Montessori websites or Montessori Research Reviews. Our study is also different from other research in that the teachers are traditional teachers who received hands-on, in-service training during the introduction of the Montessori program.

### Theoretical Orientation

The Montessori principles on which our work is based indicate the nature of change involved for both the teachers and learners from their existing traditional roles in the classroom. For instance, teachers have to allow children to learn through working with materials rather than through the traditional text explication method, and children have to learn to take responsibility for their work rather than listen and repeat the given.

We have already mentioned some of these principles, such as i) using materials as means of development, ii) belief in the child as a constructor of knowledge, iii) mixed age classrooms, iv) three hour work cycles under the description of the ecosystem at the beginning. In our study, we looked at the impact of implementing the above mentioned principles using specific techniques of Montessori pedagogy to assist teachers. We examined the changes in the perceptions of the teachers about their conception of 'teaching' and 'learning' after their experience of working in a classroom which was slowly transforming into a Montessori set-up (Cossentino, 2005).

The questions we investigated were:

1. How do teachers develop as they learn to reframe their teaching within the resources and constraints of their social situation?
2. How does this teacher change influence learners?

## Methodology

Our study tracks the development of the teachers and the students in their social milieu, the change in attitudes, beliefs and behaviours of all participants in their life in the class. Most of the data on teachers’ interactions with the students in the classroom has been gathered through participant observation (Creswell, 2012). Hence we are using qualitative research methods for this explorative study for the most part. However, one small section of the work involves the collection of quantitative data and tracks the learning levels of children.

We are looking at the ecosystem of the class as a learning web (Figure 1). Reciprocal learning is shown in each link on this web. The ecosystem consists of students and teachers in the classroom. They are intimately connected to the whole surrounding, the researchers, resource people, the management and parents among others. There are opportunities for reciprocal learning for all.

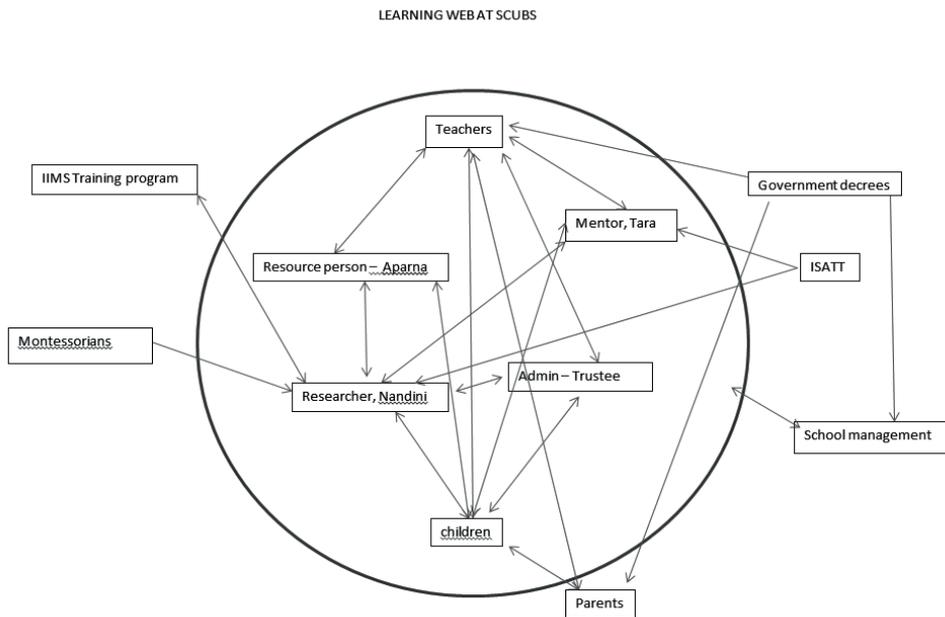


Figure 1. Learning Web at SCUBS

## Data

Two questions of the study have guided the development of tools for data collection and its analysis, as listed below:

- Teacher questionnaire, an in-depth interview and class observation of teachers to get the base line data about teachers’ beliefs, teaching and learning process and teacher learner role relationship.
- An in-depth interview and class observation of teachers In the middle of the term, followed by the exit interview at the end to understand changes in their perceptions

- A set of diagnostic tools in Kannada, (the students' Mother Tongue), English and Maths to find the levels of learning of the children.
- At the end of the year, following a discussion with the teachers, new concepts to the above tools were added to assess the new competencies gained by the children.

Nandini made ten visits to SCUBS for training and two for observation. Each of these sessions were recorded and formed the main data. Conversations and Emails between Nandini and her colleagues, Nandini and Tara, their field notes, photos and video clips of the classes were the other forms of data.

### *Data analysis*

The audio records listed above were listened to carefully and significant segments were transcribed. Data from these transcriptions, emails and other sources were gathered chronologically under each month from May-June 2013 to February 2014. We read and reread the data set, selected segments, recorded memos and sorted the segments into broad categories. (Guest, MacQueen & Namey, 2012). Then, relevant parts were highlighted and coded to show specific themes. Later, these coded segments were brought together under broad themes.

After analysing the data, the metaphor of an ecosystem looked very relevant for describing the findings. The setting we had at the end of the year was different from the one at the beginning of the year. All of us had changed in our own ways, each learning from the other. The influence of the larger community outside the class was felt within it. The happenings in the class had their own effect on the world outside.

There is simultaneity in the developments of the teachers and the children, but we will separate these threads for the purpose of analysis. Our findings of teachers and students are described in the next section, under the following themes that emerged from the data:

- The growth of the teachers
- Children's progress
- The ecosystem at the end

## Findings

### *The growth of the teachers*

As we started the Montessori initiative it created a lot of disturbance in the ecosystem. The teachers went through the stages of initial turmoil to settling down, slowly going through some transformation before they reached the state of a new equilibrium. This section traces these four steps in the process.

In the beginning, the teachers were worried about 'covering the portions' of the prescribed state curriculum. They felt that the time set aside for the Montessori class was robbing them of the time they needed for this work. However, they didn't have a pedagogical reason for these practices. This was the way things were done, and it responded well to the cultural expectation from them in their school:

*Nandini: My question now is, who expects this – that this lesson should be taught just like this, classwork has to be written, correction has to be done? Where is the pressure coming from?*

*Nalina: Things have been done like this from a long time.*

The teachers were very comfortable with the horizontal grouping of the traditional classroom. The introduction of mixed age classroom and the idea of giving individual attention were very disturbing (08.12.2013). They did not have faith in the ability of the children to work with concentration in the three hour work cycle. For instance, Nalina observed, "...

*Children become restless, they cannot sit for a long time in one place.*" (Telecon, 09.11.2013)

Jyothi and Charitha were concerned about children's writing. Although they conceded that the children who had gone through Montessori Method were more confident of writing independently than the children they had taught earlier in the traditional school. They were still not ready to give autonomy in writing. They were worried about the mistakes children would make left to themselves. (Con, 30.08.2013)

Over the period of the two months from September to November, there was a gradual settling down and coming to terms with the initiative for both the teachers and us. This was the first step towards change. We entered into a set of negotiations and compromises with teachers, so as to gain their willing participation.

We used the wisdom gained from reading scalability research, and entered into a set of negotiations and compromises with teachers, so as to gain their willing participation for our initiative. We had to give them time to prepare students for the term examination in September, 2013 in return for which they agreed to give vertical grouping a try. But this part of the agreement was not fulfilled. In November, after one month of training, children were still sitting in large, grade wise groups, with bundles of prescribed curriculum textbooks and note books in front of them, in spite of the theoretical understanding of the principle of vertical integration teachers seemed to have developed.

Around the same time teachers also reported that children of 2<sup>nd</sup> and 3<sup>rd</sup> grade were bored with the Montessori activities. The basic Montessori activities the teachers made them repeat, did not meet the need of these children for higher level activities. This meant that we had to reorganize the support to children and provide them more autonomy. Montessori (1965) has observed: "Children thus launched upon the enterprises of self-education acquire a remarkable "sensitivity" as to their own inner needs. ... His sensitivity manifests itself in a lucid and intense desire, to which the teacher has only to respond" (no page).

We gave two forms of assistance, one to the teachers, viz. Common Reading Time (CRT) to help them cover portions, and one to children, viz, use of planner and self-correction. During CRT, children were allowed to read their text individually, ask for help in understanding the content. After the reading, the teacher and the students assembled together for discussion of the text and the children answered the questions set on the lesson in the textbook. Children were encouraged to use bilingual dictionaries to help them in the writing assignments. Use of the planner to list the lessons they received, work they completed, and work planned to tackle through the day, gave children the feeling that they have control over their own lives. Teachers were also given a demonstration of planning work for a multi-level, multi-age classroom so that they could take over from us.

But a conversation with teachers at the end of November helped bring to surface the simmering concerns of teachers:

*Nandini: I am sorry, if it is text book work all the time, my coming here is a waste.*

*Nalina: It is not possible [to do Montessori work].*

*Nandini: Why is it not possible?*

*Nalina: We are still covering portions. (11.27.2013)*

The constant worry of balancing the expectations of parents as well as teachers' view of their own role with regard to completing the portions, classwork and corrections on the one hand, with our expectations of doing the Montessori activities on the other, and the prejudice that the Montessori curriculum was very demanding in terms of autonomy of the children, was troubling them. In a spontaneous meeting between the teachers, the representatives of the management, Nandini and Tara, many issues were discussed and sorted. Nandini promised to help teachers to deal with the portions, classwork and correction. The trustees agreed to deal with the complaints parents brought to the teachers. Finally Nandini made a deal with the teachers:

*You follow our instruction and work the way we want you to sincerely even in our absence.*

*If you are not happy with the outcome at the end of three weeks, then we will close the program. (11.27.2013)*

With some reservations, the teachers accepted the deal. The instructions they had to follow were quite simple: Children should work by choice and not compulsively.

We began to see elements of transformation in the attitude of the teachers from December, once they saw children could take charge of their own learning. Since the lesson that took five days to complete got completed in two days, teachers stopped talking of 'portions'. Instead of depending on Nandini to decide on the presentations for the training session, they began to ask for specific help:

*Nandini: What presentation do you want me to present in tomorrow's session?? Give me some homework.*

*Jyothi: Nothing much Madam (laughing). If you get something on English grammar, it would be good. (12.14.2013)*

By the middle of January, the balance of authority between Nandini, the teachers and the students seemed to have reached a stable state. It was as though our ecosystem of the class had reached a new equilibrium. Children picked out materials that they had not been introduced to earlier and asked teachers for presentation, and they in turn followed it up with Nandini. The teachers insisted that Nandini kept up her visiting schedule in spite of problems at school, got her to send the hand-outs required for the subsequent session through emails, and got some contact to print them out for them. This reflected teachers' ownership of the Montessori initiative.

### *Children's learning*

The children had developed the ability to assess their individual strength and weaknesses and ask for help in areas they needed instruction. For instance, in a weekly meeting between teachers and children, observed on 12.30.2013, the children who did not know how to work with statement sums, registered their names for extra help. During a story writing session, instead of writing the story presented to them as they usually did, each child wrote a different story of his/her own. Children who were 'unable to read or write words' in the pre-test had come up to the level of reading and writing paragraphs. A number of children who were unable

to write quantities upto thousands were able to do so in the post test. The number of children who could write creatively rose significantly.

### *Ecosystem at the end*

By January, the teacher fronted portion of the classroom had been dismantled. The benches had been moved towards the walls, leaving the central space free for Montessori work. This can be seen as symbolic of Montessori work taking the centre stage in the lives of the teachers and children. The timetable had also been changed by the teachers, to make way for full day Montessori work. Of the five topics listed per day, only one or two were from the standard syllabus. The teachers had integrated the requirement of the traditional curriculum into the Montessori curriculum.

### Discussion and conclusion

In the Montessori educational context, we have seen that much importance is given to the 'classical' form in the teacher training programs by purists (Lillard, 2012). But this is not something that can be implemented in our country. This is a problem faced in other countries also, where Montessori has become a part of the Public school programs (Chattin-McNichols, 1992). Even with all the rigorous training offered by standard Montessori courses, it is not as though the problems of teacher empowerment are solved (Feez, 2007).

Montessori has defined the job of the teacher as 'touching the soul of the child' and 'enthusing him to his innermost core' (Montessori, 1991, p.16). Only when this is achieved will the children become autonomous and the teachers have a feeling of satisfaction in their work. We have observed this phenomenon unfold in our study.

We do not claim that teacher transformation was total within the span of our study. The teachers still had tendencies to be directive. However, we have very convincing signposts to show that teacher transformation can be promoted effectively by demonstrating to them the ability of the children to work on their own initiative and building their confidence in the children. Teachers acknowledged that students were the trigger for their development.

In the larger context of education in India, there has been a concern with regard to the vast sections of children from low SES backgrounds. Our findings in this study has shown one way of handling multilevel and multi-grade teaching in a class of children showing wide range of abilities; from beginners in Second Language and Maths to those who are able to go beyond their grade levels. We have shown that this is possible with the in-house teachers and training in short modules. Our progress has been possible because of links between the teachers and the children, supported by the management and the resource persons. This kind of growth is possible when the teacher educator stays closely connected to the ecosystem that is the class, understands the dynamics played out there and provides relevant support to teachers and children.

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## Developing curriculum middle leaders as leaders of learning in secondary schools

*Jenny Robertson*

The University of Auckland

Government funded professional learning and development (PLD) for New Zealand school leaders and teachers requires PLD providers to respond to current education policy, strategy, and priority areas for education. At present these priorities include improving the educational outcomes for Māori, (New Zealand's indigenous people), Pacific students in New Zealand schools, students with special education needs (SEN), and those from low socio-economic backgrounds. Facilitating inquiry-based, research informed, PLD for curriculum (subject) specialist middle leaders in a way that responds to these priorities, and in secondary schools where disproportionate numbers of priority students are not yet achieving at the expected level, is complex work (Highfield & Robertson, 2015).

The context for this discussion is the Secondary Student Achievement (SSA) PLD contract which aims to develop the professional practice of middle leaders as leaders of learning in English-medium secondary schools. The purpose for the chapter at this time is not to report the evidence of PLD impact on middle leader practice and student outcomes as such, as these data are documented in contract milestone reports. Instead the discussion aims to reflect on and draw attention to overall trends and insights identified through monitoring and evaluation of SSA PLD, to provide direction for research into effective middle leader practice in secondary schools, and the PLD facilitation models and practices that develop this.

The chapter begins with an overview of the role of middle leadership, PLD facilitation, and the PLD context provided by SSA, followed by a discussion about the successful and challenging aspects of the PLD provision that have featured recurrently across the period of the SSA contract. Recommendations for PLD providers and researchers are provided as a conclusion to this discussion.

### *Middle leaders*

Middle leaders, the engine room of the school, sit at the heart of this drive [to reduce the variation gap of student achievement within schools]. They lead teams of teachers – turning senior leadership's strategy into outstanding classroom practice on a daily basis. They are closer to the action than senior leaders. High-performing middle leaders drive consistent teacher quality in their areas of responsibility through curriculum leadership, data analysis to identify pupil underperformance, lesson observations, holding staff to account and developing staff. They also ensure consistency across the school by collaborating and challenging their fellow middle leaders, influencing whole school behaviours through sharing, coaching and mentoring (Toop, 2013 para. 3).

In 2012, the New Zealand Ministry of Education (MoE) published *Leading from the Middle: Educational Leadership for Middle and Senior Leaders* (referred to in this chapter as LftM). The third in a series of leadership resources, this volume describes the qualities and practices that middle leaders need to be able to lead in ways that positively impacts student outcomes. Among other research sources, this document drew on understandings of effective educational leadership reported in *School Leadership and Student Outcomes: Identifying What Works and Why – Best Evidence Synthesis Iteration* (Robinson, Hohepa, & Lloyd, 2009).

LftM (MoE, 2012a) acknowledges that middle leaders are a diverse group in schools. The nature of secondary schooling, with a focus on subject teaching and meaningful learning pathways leading to high stakes NCEA qualifications (National Certificate of Educational Achievement – the national secondary school qualification in New Zealand, NZQA, n.d.), means the role of the middle leader requires context specific consideration. For SSA purposes, the focus is on middle leaders with direct responsibility for curriculum planning and delivery in specialist learning areas (or subjects) derived from *The New Zealand Curriculum* (NZC) (MoE, 2007). Consequently, the term 'curriculum middle leader' (CML) will be adopted for this discussion.

These CML roles have various titles such as the traditional Head of Department (HOD), or Head of [subject]. Since the release of the NZC (MoE, 2007) other role titles have become popular such as Head of Faculty (HOF), Head of Learning Area (HOLA), or LoC (Leader of Curriculum). Other CML roles include teacher in charge (TiC) of a subject or a year level(s), as well as roles that extend across departments such as the literacy leader, specialist classroom teacher (SCT), Special Education Needs Coordinator (SENCO), academic deans, and Māori and Pasifika liaison roles.

The importance of effective educational leadership (inclusive of understandings of distributed and pedagogical leadership) for raising student achievement, in addition to high quality teaching, has been reported globally and in large scale surveys, for example the OECD reports by Pont, Nusche and Moorman (2008). The concept of educational middle leadership that has particular relevance for the New Zealand schooling context has emerged from the growing international and national research literature on this role and its associated practices. The broadly understood, evidence-based features of effective middle leader practice, along with the expected attributes and dispositions of middle leadership deemed applicable to the New Zealand schooling context, are listed and referenced in LftM (MoE, 2012a).

Effective CML practice is not about the mastery of a defined set of skills or following a prescribed formula for practice, but more the development, selection and application of a diversity of evidence-based practices that respond to the ever-changing needs of learners, identified through an inquiry process. ‘Effective’ for PLD purposes means that the practice directly or indirectly makes a contribution to improved outcomes for student achievement, in accordance with evidence-based best practice for teaching and educational leadership, and current policy and strategy requirements.

### *Professional learning and development (PLD)*

In-service PLD in New Zealand secondary schools occurs in a diversity of ways, including professional learning groups (PLGs) where PLD is led from within the school, externally provided PLD in schools (such as the PLD that is the focus for this chapter), and learning area or other specialist workshops, courses and conferences. The PLD landscape at this time is undergoing change with the implementation of the Investing in Educational Success (IES) initiative (MoE, 2014b) which gives focus to school-led innovation.

Externally provided, government funded PLD provision is embedded in an inquiry process, described by Timperley, Wilson, Barrar and Fung (2007), and more recently by Timperley, Kaser and Halbert (2014). This means that the response to every school is unique and measures of effectiveness and success for CMLs, teachers and students need to be viewed in context of the PLD goals and targets for each school.

In-service PLD facilitation is a distinct practice in itself with inquiry-based PLD facilitator (or in-service teacher educator) practice described in detail in *Ki te Aoturoa* (MoE, 2008). However, externally facilitated PLD in the secondary schools, not only but especially with middle leaders, remains under-researched and under-reported.

### *SSA PLD initiative*

Concurrent with the release of LftM (MoE, 2012a) was the start of the MoE-funded Secondary Student Achievement (SSA) PLD initiative, aimed at improving educational outcomes for priority students by enhancing the effectiveness of CML practice. SSA PLD supports CMLs to build sustainable teaching and leadership practices in response to government priority areas and targets, as described in key strategy documents: *Ka Hikita: Accelerating Success 2013 - 2017* (MoE, 2013a), *Pasifika Education Plan 2013 - 2017* (MoE, 2013b) and *Success for All, Every School, Every Child* (MoE, 2012b).

Enhancing the capability of CML to be ‘leaders of learning’ has required the development of an evidence-based PLD model, and secondary-specific professional learning activities, that build the capacity of the CML, often as a teacher and as well as a leader. The most intensive model for SSA PLD provision is known as ‘in-depth’. Schools apply for in-depth PLD and the local MoE office evaluates (based on data) which schools meet requirements and which are more suited to other PLD initiatives currently available. Most SSA resource goes into schools with the greatest need - those schools with significant numbers of priority students not yet achieving at the expected level.

The in-depth model is inquiry based, co-constructed, offers a unique response to meet the PLD needs of each school, and involves a team of leadership and subject specialist facilitators

working with CML on site in their school across the duration of the school year. Typically the model will combine PLD activities involving the CMLs from each of the eight learning areas of the NZC working together, as well as individual subject specialist support for the CML working with the teachers in their department. As Toop (2013) states:

To reduce within-school variation, middle leaders must do two things: firstly, drive consistently outstanding teaching within departments on a daily basis. Secondly, they must work collaboratively across the school to ensure consistency between departments (para. 5).

In addition to designing the overall PLD model, a wide range of tasks and activities have been developed by PLD facilitators to engage CMLs in learning that will enhance the effectiveness of their practice. As an added challenge, the PLD provider has needed to develop measures (in the form of developmental rubrics framed around aspects of observable practice) to be able to reasonably evaluate enhanced CML practice as a consequence of PLD, and report the effectiveness of PLD provision.

A review of MoE literature, as well as global education reports, cite a wide range of evidence that states that high quality teaching is the single most important factor influencing educational outcomes. A similarly extensive body of leadership literature would suggest high quality and effective leadership is the runner up to effective teaching for achieving good outcomes in schools. The MoE Best Evidence Synthesis series (for example, Alton-Lee, 2003; Robinson, et al, 2009) summarises examples of this research evidence for New Zealand schools. So why focus on CML for this PLD provision and not provide PLD directly for teachers?

The decision for the CML PLD focus is to do with capacity building and sustainability. Whose practices might be more readily sustained in a constantly changing (and improving) schooling environment that continually has new teachers entering the profession, teachers changing schools, and new research and new ministry led initiatives to implement? Senior and middle leaders, by the nature of their position, have amassed years of educational knowledge and experience, committed to a position of responsibility, and have developed (or are developing) the capabilities and capacity for responding to new and changing situations – in other words, they can lead others in change and improvement processes, especially when the externally funded PLD resource is limited.

### *Reflection on SSA PLD provision for CMLs*

The evidence for this reflection comes from the experiences of the monitor and evaluator for the SSA contract, a role that spans over three years. As a reflective exercise, this discussion is not being presented as ‘research’ findings as such, but as a way to communicate ideas about the successes and challenges encountered through SSA PLD provision that could be used to inform future PLD and research.

The aspects of teacher practice, around which CML are expected to provide leadership, and therefore the focus for facilitated PLD, are listed in the SSA Statement of Work. These aspects of teacher/leader practice provide a useful framework to organise this reflection. It is

acknowledged that these aspects of practice are not discrete and overlaps exist between them, nor is it an exhaustive list of the CML practices developed through PLD.

Under each aspect of practice, some of main successes and/or challenges that have featured recurrently across the SSA PLD provision to date are described.

### *Inquiry processes*

Key to engaging CMLs and teachers in inquiry, both teaching as inquiry as pedagogy (NZC, 2007) and inquiry for PLD purposes (Timperley, et al, 2007), has been the use of student achievement data to investigate patterns of achievement for groups of students, especially Māori and Pasifika students, within and across subjects. Through PLD, CML have been supported to track and monitor student progress and achievement, and make more effective use of their SMS (school management system). This has helped CML and teachers in their department to identify students at risk of not achieving and to introduce timely and specific teaching interventions to enhance student learning.

More problematic has been CMLs ability to focus on students with special education needs (SEN). In the secondary sector, identification of low-moderate needs (more so than high needs) in accordance with current descriptors (MoE, 2014a) remains an issue when some school systems are poorly developed, and roles like the SENCO are under resourced, have no training provided, or accessing SEN assessment services incur additional costs for the school or parents.

Using a wide range of data to inform learning programme design and unit planning appears variable. While most CML readily engage with achievement data, collecting student voice, as well as a range of social and cultural data, and using this meaningfully to develop programmes, has been more challenging. Similarly, purposeful alignment between what the data suggests needs to change, with actual teaching or PLD actions, is inconsistent. This then leads to inadequate evaluation of outcomes from the inquiry process and that the cyclical intentions of 'inquiry cycles' are not fully realised or met.

### *National Certificate of Educational Achievement (NCEA)*

The ways in which students can achieve Level 1-3 certificates in the NCEA are diverse (NZQA, n.d.). Successes in CML PLD have seen: a shift away from the excessive use of unit standards to NZC-based achievement standards (achievement standards are more readily built on and provide pathways to more options across and beyond school, including university); the inclusion of sufficient standards, and therefore credits in a course so that an equitable proportion of credits can be gained towards a level certificate from each subject/course; a deeper understanding of the requirements of subject specific standards and the assessment tasks that support these; an increase in the number of students selecting at least one externally assessed standard in a course (required for NCEA course endorsement), which has been an issue in underperforming schools who favour internally assessed standards; designing learning and assessment programmes that provide a pathway across the senior years of schooling that meet learner needs, rather than the ad hoc and dead-end selection of standards based more on teacher convenience and in which students have historically performed better.

Still problematic are teaching programmes designed only around the achievement standards, rather than senior courses reflective of the NZC designed to meet diverse learner

needs. Likewise, methods of assessment tend to be conservative and ‘assessment task’ driven rather than collecting a range of evidence from across the learning programme (where such an approach could be a viable alternative).

### *Subject specific literacy*

Another success for SSA PLD has been a focus on the literacy demands of the learning areas and NCEA assessment. Subject specific or disciplinary literacy (Shanahan & Shanahan, 2008) has been a recurrent feature of PLD. Far more CMLs and teachers are unpacking the literacy demands of their learning area and NCEA assessments, and incorporating a range of subject specific literacy strategies in learning programmes. As pedagogical leaders, this is arguably where CMLs have had the most impact on the practice of teachers in their department.

More challenging is the use of junior secondary literacy data, most commonly collected through e-asTTle assessments (MoE, n.d.). When Year 9 and 10 literacy assessment results reveal the features of reading and writing in which students are weak, how to develop these features in subject relevant ways areas remains under-explored.

### *Culturally responsive pedagogy (CRP)*

What constitutes CRP occupies significant amounts of facilitators’ time, firstly to make sense of the concept, and then giving focus to CRP through PLD provision. Successes that reflect aspects of international understandings of CRP (for example, Richards, Brown & Forde, 2006; Ontario Ministry of Education, 2013) would include an increased use of data to ‘know the learner’, and implementing teaching interventions that respond to individual learner needs. There has been an observable increase in the awareness of Ministry level documentation such as *Ka Hikitia* (MoE, 2013), *Pasifika Education Plan* (MoE, 2013), *Tātaiako* (MoE, 2011) and application of research from projects such as *Te Kotahitanga* (Education Counts, 2015), although putting policy and research into practice appears variable. There have been some improvements in programme design through using locally relevant and culturally valued contexts for learning that engage students, and programmes that set higher expectations for students.

### *Digital technologies*

E-learning pedagogy and learning with digital technologies (LWDT), which have been given specific focus through other PLD initiatives, have not featured specifically among the PLD goals for CML in-depth schools. For SSA, e-learning and LWDT have surfaced more as a solution to teaching and learning issues identified through inquiry.

Supporting PLD in low socio-economic, and sometimes provincial and rural communities, means issues of access to digital technologies regularly raises concerns around equity. The consistency of school access to high speed broadband (a geographic issue) and the consistency of student access to a broadband provider and owning their own devices (an economic issue), presents ongoing challenges for CML and teachers in some schools.

### *Knowledge demands of learning areas and assessment for learning*

Working one-to-one and in-depth with CMLs has provided subject specialist SSA facilitators with opportunities to surface CMLs lack of understanding about particular aspects

of the NZC (MoE, 2007) learning areas (or subjects derived from these). All learning area facilitators can describe at least one aspect of conceptual or contextual knowledge that remains poorly developed by teachers, and which has a significant impact on student achievement. Unpacking the knowledge demands of the achievement standards and assessment tasks has proven to be a useful activity to identify CML and teacher knowledge learning needs.

PLD to develop assessment for learning (or formative assessment) practices are part of the PLD delivery but it seems that the high priority nature of summative NCEA assessment detracts attention from important formative assessment processes that need to accompany this. These formative practices are important for CMLs and teachers to be able to identify how well their students are developing relevant conceptual, contextual and content knowledge.

### *Effective pedagogy to develop students' key competencies*

Supporting CML to observe teachers in class, develop the skills to provide constructive feedback on aspects of teacher practice described in the effective pedagogy section of the NZC (MoE, 2007), and provide coaching or mentoring to guide teachers next steps in their professional learning, seems to be a form of CML PLD that is considered but seldom prioritised. As an aspect of 'leading learning' critical to the role of a CML, the potential for PLD in this area is yet to be fully developed across the SSA PLD provision. Although the key competencies listed in the NZC (as behaviours essential for student learning) are often mentioned, explicit development of CML understanding of these in relation to effective pedagogy, is less clear.

## Recommendations

To be able to report on the nature of CML practices that lead to improved outcomes for students, and to give effect to the understanding of CML practice identified in LftM (MoE, 2012a), requires an 'unpacking' of CML practice and the PLD that helps develop these. This unpacking will require both researcher and PLD practitioner input.

### *For researchers*

The current funding streams for MoE funded PLD do not include an allocation for 'research'. They do however require the provider to have a clearly stated methodology that ensures that data collected and reported will demonstrate how well contract deliverables have been met. This is very much an evaluative task. As PLD is (contractually) research-informed and not research producing, opportunities for research into the nature of CML practice and effectiveness of PLD for CML remain under-utilised and unrealised. Partnering with PLD providers opens the door on an array of research opportunities, just a few of which have been highlighted through this reflection on the SSA PLD contract.

### *For PLD providers*

With changes to the way schools access support for PLD, it would be timely that resourcing is developed in the form of a secondary sector CML, inquiry-based, PLD programme which includes examples of PLD delivery models, resources such as references to recommended readings, and a variety of PLD activities and tasks. In addition, indicators of progression (or ideas of how to develop these) to track, monitor, and report enhanced practice, that can be used

for school review purposes, reporting impact of PLD, and as part of performance appraisal processes, would be useful. The facilitation of this CML programme could be led by PLD providers external to schools, or alternatively by subject associations and other learning area-specialist organisations, and/or professional learning groups (PLGs) within and across schools.

### Conclusion

Becoming an effective CML requires learning a complex array of education-specific leadership knowledge, and the development of specialist leadership skills. It is not a practice that emerges simply as a result of an appointment to the role and the acquisition of a job title. If CML are to be the 'engine room' of the school (noted by Toop, 2013), the capability and capacity building required to develop CML as leaders of learning, will need deliberate and purposeful PLD. Whether this professional learning warrants formal tertiary level study and qualifications (much like becoming a teacher), or if in-service PLD of the type described in this chapter will suffice, is worthy of further investigation.

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## Student teachers' perceptions regarding the challenges of leadership

*Marcus Samuelsson & Gunnel Colnerud*

Linköping University

Teaching is the only profession in which the practitioner themselves has to create the conditions required in order to execute their professional duties. What this means is that teachers themselves have to organise and lead the work so that teaching and learning are made possible. For example, this can be compared with the medical profession, in which several other professional groups are involved in the preparations ahead of the doctor's meeting with the patient. These can include receptionists, nurses and laboratory assistants. The doctor's meeting with the patient is structured in a way that aims to place greater focus on the patient's problem and give them the opportunity to see more patients. Furthermore, professions that deal with adults can expect their patients or clients to remain loyal to the established, profession-specific structure.

Schools are, of course, organised according to a certain structure. However, the fact that there are a large number of pupils, who are young, have varied needs and different attitudes to being forced to be there, requires the teacher to exercise leadership; leadership they often have to master alone. Consequently, student teachers are not required simply to develop their knowledge of the subject, their didactic proficiency and their interpersonal skills, but must also develop a type of leadership that forms the basis of their ability to practice their profession. This study uses interviews to investigate student teacher's perceptions regarding leadership in the classroom – what it encompasses, what is required and which problems they predict will arise in future.

### Previous research

Media and political interest in schools often focuses on teachers' failings in terms of creating a calm classroom environment. This can easily lead to simplistic conclusions about what

constitutes effective leadership and expectations regarding effective techniques for resolving complex circumstances (Cochran-Smith, 2015). The public debate regarding the school system's failings can be assumed to have an impact on student teachers' notions concerning leadership. Brophy (1988) specified two simplistic and common variants with regard to student teachers' notions about what is required of a teacher as a leader. One notion was that leadership consists of discipline and that respect is gained through others being subservient to the teacher's authority. The other notion is characterised by a naive idealism and a romanticised view of human nature, which is why these student teachers underestimated the requirement for leadership. In both cases it is necessary that those who educate teachers repeatedly contribute to ensuring that student teachers' notions of classroom leadership become more nuanced throughout their teacher education.

Jones (2006) conducted a systematic research review concerning student teachers' leadership training. He demonstrated common failings in teacher education programmes. For example, the training led to a much too general and theoretical approach, the students did not develop their ability to manage seriously disruptive behaviour and they were not prepared for teaching in multicultural environments. He also pointed out that the university lecturers who taught student teachers lack practical experience of what is required in terms of leadership in the contemporary classroom. (See also Bru, Stephens & Torsheim, 2002; Colnerud, Karlsson, & Szklarski, 2008).

Teachers' classroom leadership is generally thought to be an area that is neglected in teacher education in many countries. This is in spite of the fact that many studies show that the ability to lead pupils' learning is of vital importance to their well-being, motivation and learning, and to the length of time the teacher remains in the profession (Evertson & Weinstein, 2006; van Tartwijk & Hammerness, 2011; Emmer & Sabornie, 2014). In those cases where the teacher education programme does address the issue of teacher leadership, the training often involves learning from books, supplemented with the odd seminar, but without the opportunity for practical leadership training. For this reason, the journal *Teaching Education* published a special edition in 2011 on classroom management (CM), which presented current research regarding how teacher education in various different countries addressed CM. Among the articles there were examples of how student teachers can be offered training that provides them with an opportunity to develop integrated leadership (van Tartwijk, Veldman, & Verloop, 2011).

What's more, the same journal also presented research that attempts to differentiate variables of significance to the teacher's leadership and which should therefore be part of the training that the student teacher receives. Wubbels (2011) carried out an extensive review of the relevant research and identified six different approaches to CM. Based on the question "what preparations does a newly qualified teacher need to make", he demonstrates that teachers who succeed best with regard to leadership use actions taken from all of these six approaches. These are of a general nature. He highlights aspects such as the fact that successful leadership distinguishes itself through a focus on learning rather than a noise-free atmosphere, a personal acceptance of students, a good sense of humour and frequently offering students helpful suggestions (Wubbels, 2011). This is more about the teacher's approach, their attitude, than the

techniques employed. Wubbels' conclusion is that student teachers must learn to "use actions appropriate at a particular time in a particular classroom" (p. 128).

As is the case with Jones (2006), Wubbels (2011) does not support an instrumentalistic or technical view of how student teachers can develop their leadership skills. Instead, Wubbels suggests that student teachers should be prepared so that they can themselves choose the best action in relation to the situation in question. Thus it seems that he has confidence in the ability of the student teachers to develop professional judgement. Although he does not himself refer to Aristotle, we can trace his reasoning back to the form of intelligence Aristotle (third century BCE/1967) calls *phronesis*, practical wisdom. This intelligence, which can be treated as a virtue, relies on knowledge other than that of *techne* (craftsmanship) or *episteme* (theory) and implies that the practitioner should be able to choose the right action in a given situation. The right action is one that is both successful and morally just.

### Forms of knowledge in professional education

As with other professions that serve people, the practice of teaching is based on several forms of knowledge. Three forms of knowledge appear in discussions concerning professional theory: (a) experiential, (b) academic and (c) procedural.

The assumption on which *experiential* knowledge is based is that practical knowledge results from intuition, familiarity and experience. The practitioners dedicate themselves to this subconsciously and spontaneously, without the need for guidance, monitoring or control (Rolf, 2006). *Academic* knowledge consists of theories, patterns and models that are relevant to the role the profession has in society. Application of these academic models constitutes a variant of professional knowledge. *Procedural* knowledge is based on the assumption that that practical knowledge relies on some form of standard that differentiate between better and worse performance, without being prescriptive about the details. Rolf (2006) calls these procedures. These comprise an evaluation of one party's performances – they set an ethical, professional standard. The parties involved do not simply adhere to the procedures, instead they can also change and improve them through reflection and metacognitive analyses.

In professions that are practised in large, open social systems, of which the teaching profession is one example, unpredictable events often occur. A teacher must be able to improvise, remain focused on the most important aspects of their job, revise their plans, try another route and make a new decision. Theory alone cannot stand up to the complexity of professional practice as academic models presuppose a delimitation that ignores the complexity of this matter. Experience alone cannot provide a basis for the quick decisions the teacher is forced to make as every situation is uniquely complex and a conscious evaluation of the various courses of action available is required. Professionals are accorded the discretion of being free to make these decisions on the basis of their own judgement.

A teacher's leadership is an area of expertise that primarily requires procedural knowledge. It is impossible to use a standardised model to direct all the different possible variations of the events that happen in the classroom. These require a variety of different courses of action that are based on an appraisal, a standard, of what is a good performance in the case in question. Mastery of the procedures involves both cognitive and social elements (Rolf, 2006).

## Method

This study is part of a larger research project in which we investigate if, and in what way, different types of computer simulations can help Swedish student teachers develop their leadership skills. In order to study the effect of the simulations we have interviewed student teachers before and after they have tried them out. This part of the larger project focuses on the student teachers' perceptions of their forthcoming leadership role that emerged from the interviews. We make no claims here about the effects of simulation or any other effects. In addition, the student teachers had five weeks of teaching practice between the pre-simulation and post-simulation interviews.

The interviews were semi-structured and were based on a simple interview guide. They lasted 20–30 minutes. The participants are self-selected student teachers at the end of their teacher education programme. In this part of the larger project, they consist of 10 student teachers, which thus contributed 20 interviews; their specialisations covered all school years and subjects in compulsory and upper-secondary school. The interviews were conducted by the authors themselves.

Following transcription, the interviews have been analysed using qualitative content analysis in order to discern the various perceptions of leadership found in the participants' comments. These have then been categorised, through which a pattern of related perceptions emerges.

## Results

In this part of the larger project we are looking for the variation in the student teachers' perceptions concerning leadership. In general, every student expressed similar perceptions at the pre and post-simulation interview, except in one case where a student teacher clearly expressed a changed outlook on leadership.

### *Two knowledge models*

The student teachers' responses in the interviews are consistent in some respects and differ in others. Two overarching ways of reasoning, two variants, stand out, which we call the *academic model* and the *dilemma model*. The former has a scientific pattern in the sense that there are academic rules to relate to because they are so certain that these should be complied with in accordance with the concept of evidence-based knowledge. The latter presupposes that the teacher uses their judgement within the scope of their professional discretion in order to decide what is a suitable way to act in the current situation. Accordingly, the student teachers express themselves in terms of striking a balance between the two opposing options in their leadership of the classroom.

### *Leadership according to the academic knowledge model*

The academic model is based on the premise that there are ideal leadership strategies and that these are the correct strategies the teacher should use. When the student teachers give expression to this knowledge model, they list, for example, extensive expertise and a large number of desirable skills and abilities that teachers have to develop. Some of these are obvious

such as the teacher having the requisite knowledge of their subject. Others cannot be said to be backed up by evidence, but are mentioned as though they should be obvious. Sometimes the list is long.

One student gives expression to the academic knowledge model and refers to empirical research concerning successful leadership.

ST: *Sure, it's the authoritarian leadership style that pretty much everyone thinks you have to aim for /.../ you have to have set rules, issue reasonable sanctions, not just set rules yourself, but let the pupils be involved in the decision-making process.*

I: *Does this encourage compliance with the rules?*

ST: *I think so. It seems so, research appears to indicate this, in any case.*

In this case, the student has taken in the research presented in the course literature and reproduced the recommended strategy – with some reservations.

The academic knowledge model involves the student teacher having accepted that research has found certain patterns, strategies or models of how teachers have to act in order to achieve successful leadership in the classroom. There is certainly empirical evidence that certain strategies are successful, but hardly any to suggest that this is always the case. A less certain view of what leadership requires emerges in what we are referring to here as the dilemma model.

#### *Leadership according to the dilemma model*

The second knowledge model does not involve there being "a correct" strategy that student teachers must learn to use. Instead, the teacher must find the balance between two positions. Five dilemmas emerge. These can, for example, involve striking a balance between *closeness and distance* or between *democratic goals and knowledge goals*. The dilemma model presupposed that the teacher has the freedom to find the best course of action under the current circumstances – a professional discretion.

The student teachers give expression to a tension between two possible action strategies that are both justified, but where the balance between them being dependent on the context and the situation itself. In contrast to the academic knowledge model, which is based on the premise that there is academic evidence to support certain viewpoints, the dilemma model allows for the teacher to use their judgement in each individual case.

#### *1. Authority, distance and domination versus being personable*

This dilemma involves having control of the class and what is happening in the classroom. Authority, distance and domination are necessary elements, but the teacher will find it easier to get the pupils to follow them if they also display their personable side. However, the distance to the pupils must not be so great that it harms the contact between teacher and pupils.

*I normally leave quite a big distance /.../ and I sometimes feel I need to relax a bit more, but it's easier, of course, to gradually offer a little more of yourself.*

The pupils' provocations are brought to the fore in this theme. This concerns pupils who question the teacher's right to impose work on them, disruptive pupils and pupils who are passive and do not do their work.

One student teacher discusses the pros and cons of the various courses of action available.

*I don't think it's worth getting into a fight /.../you get boxed into a corner if you do as you don't have much to work with /.../ what I try to do is to maintain a good attitude and not take anything too personally, and maybe concentrate instead on the good I'm doing.*

Using your authority to control what the pupils are doing is to exercise your power. The student teacher describes their caution in, on the one hand, accepting provocations targeting their role as a teacher and, on the other, stamping their authority on proceedings, since this can jeopardise the good relationships.

## *II. Creating relationships versus not too deep, not too private*

This deals with creating a climate in the classroom that is socially safe for both teacher and pupils. An environment like this reduces the resistance that is often inherent on the part of the pupils, especially when faced with a demanding subject.

*After all, you're there for their benefit, not to boss them around. /.../ You have to be able to be yourself with them. You can't be too private, you have to be there as a person, not just a teacher.*

This dilemma, finding the right balance between establishing a close relationship and not being too private, is thought to worry many student teachers. This difficulty is described by one student teacher as follows:

*That's what we're trying to work out, how to find the balance. On the one hand, personal leadership appeals to me – getting closer to the kids and being able to help and support them. This is something that appeals to me, at the same time as being able to keep your distance because you may need to distance yourself from them in order to grade or assess them. /.../ if you've opened up to them too much, you can also make yourself very vulnerable.*

One student teacher who was very sure of their attitude with regard to the balance between distance and close relationship in the pre-simulation interview made it clear in the post-simulation interview that she had re-evaluated her position. In the pre-simulation interview, she was certain that she would keep her distance from the pupils "I am not a psychologist or counsellor". In the post-simulation interview, which takes place following a period of teaching practice, she says, without being asked: "I have really changed my opinion there, a lot actually". She explains:

*When I noticed (paid attention to, author's note) the pupils, I actually got quite a lot back in return as well /.../ you see through their body language and expressions when they're upset and it helped to simply ask them how they were feeling, and she started to cry and we had never talked to each other and it was enough to say 'yes, but you don't need to do so much today' and then I felt that she listened to me next time we met, because I'd noticed her before.*

This student teacher changed the balancing point between distance and closeness in her contact with the pupil.

Student teachers consider the value of getting close to the pupils, but they weight this up against the risk of this closeness creating problems when they have to exercise their authority, especially when allocating grades.

### *III. Regarding all pupils as individuals versus leading a collective*

The ambition that all pupils feel the teacher treats them as an individual is emphasised in many comments. At the same time, the teacher has to lead a collective and keep the class together as a group. These two qualities appear to be somewhat incompatible. A focus on the group is hard to combine with a simultaneous focus on an individual pupil. Nevertheless, this is what student teachers would like to be able to achieve.

*You must be able to switch your attention from the group to the individual, which is quite hard, I think.*

Another student describes the competition between the needs of individual pupils and the rest of the class in terms of getting the teacher's attention. It is risky to shift the focus away from the class and, furthermore, it can be to the detriment of the learning of the majority. At the same time, certain pupils must be given individual help in order to progress. Student teachers have realised that this is a choice they must make in the moment, and something that crops up again and again.

### *IV. Well-prepared versus flexible*

Another dilemma that requires balance is that between well-prepared, structured and clear leadership and flexible leadership that involves the teacher being prepared to react to the unexpected and change their teaching accordingly.

*The ability to read the situation, to be prepared and also present in the moment, to be well-prepared but able to improvise.*

Many students stress the necessity of having a plan, being clear and being goal-oriented. A confused teacher who appears unsure of what the lesson is about, and who doesn't have their papers in order worries the pupils and does not instil confidence in their leadership. At the same time, the majority of student teachers realised that they cannot adhere to rigidly to their plans. Their reasoning can be interpreted as expressing how they want to have a well thought-out plan, but also be prepared to adapt to unforeseen events or serious changes to the climate in the classroom.

### *V. Knowledge goals versus democratic goals*

One dilemma mentioned concerns the choice between knowledge goals and democratic goals. One of them comments:

*Being there to achieve something and at the same time /.../ to mould them into good people.*

The manner in which the student teachers discuss the dilemma between knowledge and having an impact on values suggests that they are not sure what importance they are to place on democratic values relative to the knowledge goals.

In conclusion we would like to point out that the five dilemmas that emerged from our analysis of 20 interviews with the student teachers can be considered as an initial stage of an ongoing study which will involve interviews with a further 20 student teachers.

## Discussion

The student teachers who participated in this study have much more nuance and developed perceptions of their future leadership role than those described by Brophy (1988). The two dichotomous categories that he formulated are simplistic in comparison to these student teachers currently involved in (Swedish) teacher education programmes.

The student teachers who give expression to the dilemma model do not appear to be looking for an academic knowledge model; an evidence-based method for classroom leadership. Their reasoning can instead be interpreted as their attempt to strike a balance between different qualities, with the unique situation determining which alternative they choose.

These student teachers are prepared for the complexity of a teacher's leadership role and are clear that they will be making important decisions on their own, sometimes without much time for reflection. Consequently they need to use their own judgement, which is consistent with Wubbels' (2013) conclusion that they "use actions appropriate at a particular time in a particular classroom". The discretion afforded to their profession gives them the necessary leeway (Rolf, 2006). Consequently, these student teachers are embarking on their future profession with an *identified insecurity* that is already in place.

The few student teachers who give expression to an academic knowledge model in which certain ideal strategies take priority over others are in danger of discovering the limitation of these recommendations. This is especially the case when they are faced with complicated situations in which they are immediately forced to improvise.

In the light of the results of this study, it appears that a contemporary teacher education programme should contribute by providing a language and a terminology for analysing a broad repertoire of dilemmas, rather than with methods that convey an *imaginary security* with regard to leadership in the classroom.

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## Qualitative analyses of learning in a systematic and iterative research process – English as a foreign language

*Per Selin*

The University of Gothenburg

School development is a term that can be heard frequently. What this term actually means is perhaps not always the same from one time to the other. On the one hand, school development can be the developing of the structure of the organization of the school as in an organization analysis. On the other hand it could also be an analysis of a particular school's role in a particular society or it could on the third hand be an analysis of the pupils' achievements on a general level compared to pupils' achievements in other schools or compared to pupils from previous years in the same school. Yet another perspective on school development can be to analyse and try to improve the quality of the teaching through a specific education effort on the teachers. In this text school development is seen as an analysis of a specific education effort on the teachers, but the pupils' learning is still an important factor. Starting off from a so called learning study project (Marton & Tsui, 2004; Marton & Pang, 2005; Holmqvist, 2011; Selin, 2014), the teachers' understanding of oral communication strategies is analysed through the use of Engeström's (2001; 2004) activity theory of expansive learning.

The aim of the chapter is to analyse teacher learning in a school development project. The research question is *through which processes do the teachers learn about pupils' learning of oral communication?* The unit of observation is the conversations among the teachers in the learning study group before and after the research lessons when the pupils' learning is analysed. The unit of analysis is the activity systems that through expansive learning transforms the teachers' participation in the discussions. The tool for the analysis is the theory of expansive learning (Engeström, 2001; 2004) and a grid similar to the one in Engeström (2001) is used.

## Previous research

Holmqvist (2011) studied the teachers' learning in a learning study and found that teachers that had participated in a learning study improved their abilities to discern critical features of an object of learning and also that they were able to be content-specific in their instruction. Previously when teaching the teachers had used their general ideas about learning, but after having discerned critical features of a specific object of learning, they were able to adapt their instructions to suit the current object of learning. Similar to what was mentioned above, the teachers in Holmqvist's study also reflected on the importance of asking questions that led to deeper thinking rather than quick answers.

It is suggested by Hargreaves (2013) that participation in teacher learning communities, to a very large extent similar to the one in the present study, leads to teachers functioning more as facilitators than the ones who are in control of everything. It is also suggested that teachers then included the pupils to a larger extent in the decision about content than if they had not been working collaboratively in teacher learning communities. In addition, the pupils were reported to have increased their abilities to comment on their own work, making comment on feedback rather than commenting on grades.

Anthony, Hunter and Thompson (2014) showed through an analysis informed by Engeström's (2001; 2004) theory of expansive learning the professional development of a single teacher who aspired to improve teaching. They argue that in order to be successful in expansive learning, teachers need to experience and take part of tensions and contradictions in their work. This needs to be experienced both regarding the self and the practice. It is also argued that negotiation among colleagues as well as negotiation teacher versus pupils is vital. The negotiations should concern both content and focus of the intervention that is treated in the school development.

## Method

The main result presented in this text is an analysis, using an activity theory approach, of the results from a previously presented learning study (Selin, 2014) and therefore both learning study and the activity theory of expansive learning will be presented here.

### *Learning study*

Using learning study as a way of improving the teaching and learning in schools is founded in two main ideas in the approach (Pang & Lo, 2011). There is on the one hand a strong focus on the object of learning and secondly the variation theory is applied throughout the process. Together with the basic structure for a lesson study (Morris & Hiebert, 2011) the learning study approach may become successful both as a means of improving schools and as a research method. The main difference between a learning study and a lesson study is that a specific theory of learning is applied throughout the process (Pang & Marton, 2003). The basic structure for a learning study means that first an area of teaching is decided upon and in that area a certain content, the object of learning, crystallizes either through interviews with pupils or through experience among the teachers. After a pre-test has been carried out a lesson, or a series of

lessons, is planned to teach this element and when the lesson is done a post-test tells whether the teaching was fruitful or not. This post-test is complemented with an analysis of the action in the class room, done by the teachers in the group. The learning study is always done in a group of teachers sharing the same subject and pupils in the same age. Based on the result from analysis, a second lesson is planned and performed in another class in the same school year. Again with pre- and post-tests and analysis afterward. The change in between the two lessons should, with reference to the variation theory, make the object of learning appear in a different way. Please note that the method of teaching, e.g. group work, individual work, pen and paper or watching a film is not relevant. It is the way the aspects of the object of learning are varied that matters. The cycle is done a third time before the findings are presented in a report and thereby communicated to other teachers; at the same school as well as at other schools.

The assumptions in learning study as a way of improving work at school are mentioned above. It focuses on learning and it is based upon a theory of learning. There are, however, other ideas as well. It forces teachers to work together and jointly plan and evaluate their teaching. Even though it may cause some tension to bring in expertise from the outside (Adamson & Walker, 2010) it is fruitful for teachers to work together. As mentioned before, Learning Study is based upon a theory of learning and that means that the teaching stands a better chance of actually promoting learning or at least explaining why learning took or did not take place.

### *Activity theory*

One way of implicating the sociocultural perspective (e.g. Vygotsky, 1978) in the classroom is through the activity theory that was outlined by Leontiev (Lantolf, 2000). Human behaviour is, according to the activity theory, the result of the integration of socially and culturally constructed forms of mediation into human activity as a functional system. The term functional system is critical since it is presupposed that to understand human activity you cannot study its structure, but its formation (i.e. its history) because you have to know how it has been formed. A thorough reasoning about the core of the formation and the way to identify this in teaching children has been outlined by Davydov (2008). Continuing on describing the functional system it has to be stated that activity is not just doing something at random but doing it in regard to a certain need. This need might be biological, e.g. hunger or cultural, e.g. the need to be literate in a certain situation. The need, though, only appears and becomes a motive once it is directed at a specific object and this means that motives only are realised in specific goal directed actions. These actions are carried out under particular conditions or operations and through appropriate mediation means. This means that the activity theory constructs a three level dimensioned structure. First there is the level of motivation, then action and finally operations/conditions. According to Lantolf (2000), the only possible level to observe the activities is the final, the operational, level. This is because the same operation can be connected to different goals and the same goal can be connected to different operations. Lantolf offers an illustration with the traditional hunt where the motive for the hunt originally stemmed from the biological need of hunger. This same motive was realised in different operations because of the fact that the labour of hunting was divided into tracking the prey, beating bushes and trees to alarm it, shooting it and taking care of the meat. Nowadays, in many countries and cultures, hunting is no longer motivated by the biological need of hunger but more of the cultural need of socializing.

In this text, where the unit of analysis is the conversations that take place during the planning sessions of the learning study, Engeström's (2001; 2004) theory of expansive learning will be used. It stems from activity theory and one of the main principles is that a collective, artifact-mediated and object-oriented activity system, seen in its network relations to other activity systems, is taken as the prime unit of analysis. Three central factors in an activity system are identified in Engeström (2001), where the first is multivoicedness. An activity system is always a community of multiple points of view, traditions and interests. The division of labour in an activity creates different positions for the participants, the participants bring their own diverse histories, and the activity system itself carries multiple layers and strands of history engraved in its artifacts, rules and conventions. The second factor is historicity. Activity systems take shape and get transformed over lengthy periods of time. Their problems and potentials can only be understood against their own history. Finally, contradictions are historically accumulating structural tensions within and between activity systems. An expansive transformation of the learner's participation in an activity is accomplished when the object and motive of the activity are reconceptualized to embrace a radically wider horizon of possibilities than in the previous mode of the activity.

### *Participants*

The participants in this study are seven teachers who took part of a learning study project during the spring term of 2013. They are all qualified teachers of English as a foreign language. The learning study project focused on the teaching of oral communication to first year pupils of a college in Sweden. The object of learning (the specified quality that the pupils should develop through the teaching during the learning study lessons) in the lessons was the ability to adapt language according to situation. There was also a researcher from a university present at the planning sessions. The researcher is also a qualified teacher of English as a foreign language at college level. In the excerpts from the sessions, the teachers are called T1, T2, T3 and so on. The researcher is called R.

### Result

In this part of the text, the discussions in the teacher group will be analysed in the same way as Engeström (2001). The focus will therefore be on who is learning, why they are learning, what they are learning and how they are learning.

### *Who are learning?*

The teachers in this learning study participate in several activity systems. One activity system is the one they share with their pupils in their classrooms as teachers in relation to pupils, mediated by tools such as exercises. Another activity system that the teachers take part in is the teacher group that consists of the other teachers of English as a foreign language. It is this activity system that will be analysed here. The multivoicedness of the activity system of the teacher group can be seen in this excerpt when the teachers must be both leaders in the classroom and at the same time subject specialists.

## Excerpt 1

- T1. *Are they really two separate things? I don't think so.*  
 R. *Which?*  
 T1 *Vocabulary and interaction.*  
 R. *Well, there is a specific vocabulary to invite for interaction so...*  
 T1. *We were thinking about whether they needed to know something about the subject prior to the lesson, but...it shouldn't really matter.*

*Why do they learn?*

The reasons for the teachers to learn about teaching oral communication can be found in historicity, which could be seen in Excerpt 1.

New ideas constantly need to be developed and it shows in this excerpt that the teachers get new ideas about oral communication from the discussion with the researcher. But at the same time there is also a sense of contradiction regarding why the teachers learn. The contradiction lies in the fact that the teachers need to cooperate in subject specific groups like the one where this discussion takes place, but they are also leaders of their classrooms and in the roles of the leader the teacher is to a large extent an individualist. This contradiction can be compared with the two activity systems (classroom and colleagues) that were described previously.

*What do they learn?*

There are many things that the teachers in this study learn by participating in it. One of the first things that they understand is that here is a difference between what the pupils learn and what is taught in the classroom. Several tasks can lead to similar learning and it is the learning that should be in focus.

## Excerpt 2

- T3. *But perhaps we could take the exercises from this book. At the end of it there are interaction exercises.*  
 T2. *Yes, they are on a different topic, but the focus is still on interaction.*  
 T3. *So it would be a different format.*

The task (exercise) is used for learning (interaction), which is shown through the multivoicedness of the teacher group in the excerpt. The historicity in teaching of oral communication can also be seen in this excerpt where you realise that the teaching has moved from mastering a topic genre (such as leisure time) to mastering interaction strategies.

The two activity systems (classroom and teacher group) that were described earlier is shown in the question about what the teachers learn too. Through the joint assessing and planning done in the learning study these two activity systems are combined.

## Excerpt 3

- T1. *I vote for the pictures.*  
 T3. *OK, let's go for that then.*  
 T2. *Same themes and different questions then.*  
 T1. *Or if we have different themes and same questions. It doesn't really matter.*

A contradiction that leads to what is learnt can be seen in the discussion that took place regarding how the lessons should be assessed. The teachers initially thought that the pupils learning must be assessed on an individual level. This is probably how they are used to assess

their pupils. This time though, they want to assess the effect of their teaching on a group level, and therefore the analysis can be made differently.

Excerpt 4

T4. *I could hear that they adapted their language. It was a clear difference between pre- and post-test.*

R. *The same pupil?*

T4. *No, but that doesn't matter, does it?*

T1. *We are listening for changes, not individual learning, aren't we?*

To a certain extent, the contradiction above is the result of learning in the two activity systems classroom and teacher group. When the project was summed up the teachers seemed to have a clear view of the different activity systems and the learning in them.

Excerpt 5

T1. *We became aware of the fact that there was a difference between her pupils and my pupils when it came to the learning they were offered.*

T3. *And then we also learned that it perhaps didn't have too much impact too study it [the learning] at a group level. Perhaps we would have to have studied it at an individual level to get a real result.*

### *How do they learn?*

There are contradictions, as well as elements of historicity and multivoicedness involved in the way the teachers learn about the teaching of oral communication. The contradictions appear when it shows that there are two theories of learning that say different things to the teachers. Variation theory, which the teachers and the researcher in Excerpt 6 are discussing in the first lines, states that learning appears in the changed view of the relation person-object (of learning). The formative assessment program that is referred to at the end of the excerpt is based on a theory of learning which states that learning is a changed way of thinking (not involving the relation person-object, rather only being in the person).

Excerpt 6

R. *When you are discussing developing qualities it is better with several [critical aspects of an object of learning] at the same time.*

T1. *And we are in the middle of it now?*

T2. *That's the feeling I have. My pupils are at a level where this becomes too easy. I have a colleague who uses the term "instrumental", but I can't use it because I don't really understand it.*

T3. *That's the critique that has been directed at BLS [a school development programme focussing on formative assessment].*

R. *It becomes too mathematical. Too much of "first this and then this".*

T2. *And I don't think it works in this way, and especially not for my pupils. They need something more.*

It also shows in excerpt 6 that the multivoicedness in the teacher group contributes to the learning. The historicity is shown when the teachers compare and contrast their previous ideas about learning with new theories that they get in this learning study project.

## Excerpt 7

- T1. *The fundamental ideas about learning is an interesting question. It is relevant for how we design our lessons.*
- R. *And it is also relevant for a lot of other issues such as theme work and project work across subject disciplines.*
- T1. *If you should only focus on one thing at a time, you should not have theme work.*
- T2. *There is an obvious difference between learning a language that you develop continuously and something that is divided into parts and finished. Such as history. First you have the Greeks and then...*

The fact that the lesson itself is one activity system and that the analysis afterwards is another is also contributing to how the teachers learn.

## Excerpt 8

- L4. *The pupils themselves said that it was mostly “yeah, yeah, yeah”.*
- L5. *So it was obvious that they felt themselves that it was a rather bad conversation?*
- L4. *Yes*

## Discussion

The results are summed up and shown in Table 1, the design of which is based on Engeström, 2001. What is shown are the five analysed activities and the four questions they answered.

Just like the teacher in Anthony et al. (2014), the teachers in this study learn from the multivoicedness and contradictions that are created in the discussions before and after the research lessons. They learn that there is a difference in assessing pupils' learning at an individual level and at a group level and also that the pupils' learning is not in the same field as their own. Whereas the pupils learn about strategies for oral interaction, the teachers learn about creating opportunities for pupils' learning. It can also be seen from the results that in line with the results from Holmqvist (2011) and Hargreaves (2013), the teachers include the pupils in the planning in the sense that the results and voices from the pupils in the previous lesson are used when planning for the next.

The activities that lead to the learning among the teachers are mainly contradictions and multivoicedness. There are contradictions between the teachers' different theories of learning, as shown in Excerpt 6. There is also a contradiction between the teachers' aim of mastering their own classrooms and their aim of cooperating in the teacher learning communities. It can be seen in the excerpts that through the activities the teachers are forced to make their ideas about teaching visible. Throughout the discussions all teachers' voices are heard, but the teachers are forced to argue for their ideas. The expansive cycle that is identified in this study lies in the tension between the two different activity systems classroom/pupil learning and teacher learning community/teacher learning. Through this activity theory informed study these activity systems could be identified and it is therefore suggested that teacher learning in this study comes from the contradictions and multivoicedness that is created in joint assessing of pupils' learning in classrooms.

Table 1: Activity systems and expansive learning in EFL learning study

	Activity system as unit of analysis	Multivoicedness	Historicity	Contradictions	Expansive cycles
Who are learning?	Interconnected activity systems: Teachers' subject group. Teachers within a pupil group. Excerpt 1	Teachers as subject specialists. Teachers as leaders in the classroom.			
Why do they learn?			The teachers need to develop new ideas. Excerpt 1	There is a tension between cooperation and mastering one's own classroom	
What do they learn?	The pupils' learning at a group level vs the pupils' individual learning. Excerpt 5	Topics to discuss in a classroom vs. areas for learning. Excerpt 2	Teaching of interaction has developed from mastering a topic genre to mastering of interactional strategies. Excerpt 2	There is a contradiction between the teachers' learning and the pupils'. Excerpt 4	The teachers understand that through joint assessing and planning, more activity systems are activated. Excerpt 3
How do they learn?	The lesson is one activity system and the analysis of it another. Excerpt 8	The teachers experience one thing during class and through what they hear in the discussions they expand their learning. Excerpt 6	The teachers contrast their previous ideas about learning with new ideas. The old ideas appear different in a new light. Excerpt 7	Two theories of learning say different things regarding the planning of lessons. Excerpt 6	

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## Prospective teachers' readiness for teacher leadership in Hong Kong

*Sally Wai-Yan Wan*

The Chinese University of Hong Kong

Teacher leadership is an important concept in curriculum reforms. Its importance for student learning and school development has been well proved in different countries (Leithwood & Louis, 2012). More awareness has been raised towards the importance of teacher education in developing teacher leadership to build up prospective teachers' competence, capability and confidence in facing complex educational change. Most teacher education programs focus on developing teacher quality and teaching effectiveness, which are inter-related concepts as the base of teacher leadership (Leonard, Petta, & Porter, 2012). Zeichner (2010), however, revealed a "disconnection" between teacher education programs and teacher leadership development. Still, little is known about prospective teachers' understanding of teacher leadership when developing teacher education programs.

### Teacher leadership

Over the decades, there has been a paradigm shift in understanding teacher leadership. In the 1990s, with the rise of professionalism of teachers and curriculum reforms, more emphasis was put on formal leaders who decentralize curriculum decision making in schools and communities (Mangin & Stoelinga, 2008). Crowther, Kaagan, Ferguson, & Hann (2002) proposed a "new paradigm" of the teaching profession, where the capacity of the profession to support the need for school restructuring as well the potential of teachers to provide new forms of leadership in schools and communities is realized, where leadership is no longer bounded to be positions or delegation of responsibilities. Teachers are believed to "lead within and beyond the classroom; identify with and contribute to a community of teacher learners and leaders;

influence others toward improved educational practice; and accept responsibility for achieving the outcomes of their leadership” (Katzenmeyer & Moller, 2009, p. 6).

Recent studies have been done to “identify those alterable conditions likely to have direct effects on students, and to inquire about the nature and strength of the relationship between these conditions and leadership” (Leithwood, 1999, p. 681). Successful teacher leadership is found to be mainly dependent on school culture, collegial relationships, as well as principalship (Durrant & Holden, 2006; Levenson, 2014).

The aim of the study is to explore prospective teachers’ perceptions of teacher leadership based on threefold: First, most of the studies focused on in-service teachers. Second, teacher leadership in local studies is yet to be developed whilst few focused on the impacts of school-based curriculum projects on teacher leadership and leadership style in curriculum decision making (e.g. Law Galton, & Wan, 2010). Third, suitable teacher education strategy can be provided to “potential” teacher leaders who “practice their craft in subtle ways that may not be obvious to others” (Katzenmeyer & Moller, 2009, p. 14).

## Method

### *Research design*

To answer the research question “*What do prospective teachers perceive teacher leadership?*” a sequential mixed method approach was applied, containing two phases of data collection using different research methods for triangulation (Creswell & Plano Clark, 2007). In the first phase, an online survey was applied. In the second phase, individual interviews were done to further understand the quantitative data.

### *Quantitative study*

#### Participants

Applying convenient sampling method, the quantitative study was administered to 69 prospective teachers in the three compulsory courses in bachelor of education programme in one Hong Kong university during the academic year 2014-2015 (Appendix 1), including 24 prospective teachers majoring in Chinese language education, eight majoring in physical education, and two minoring in education (Table 1). More females (N=50) responded to the survey enrolled in the survey. The largest proportion of the respondents is Year 3 students (N=31). Most participants did not have teaching practice experience, i.e., 65.2%.

#### Instruments

Quantitative data were collected using an online structured survey based on Teacher Leadership Inventory (Katzenmeyer & Moller, 2001), with 25 items assessing teachers’ readiness for teacher leadership on a 5-point Likert scale, ranging from 1=strongly disagree, 2=disagree, 3=no opinion, 4=agree, and 5=strongly agree. After informing prospective teachers about the purpose of the research, the confidentiality of identities and the extent of commitment, the online survey was sent to prospective teachers via email. Participants showed consents on the online survey and answered the survey.

Table 1. Demographics of survey participants.

Demographics		N	%
Gender	Male	19	27.5
	Female	50	72.5
Major area of study	Chinese language education	24	34.8
	English language education	17	24.6
	Mathematics education	14	20.3
	Liberal studies education	4	5.8
	Physical education	8	11.6
	Others	2	2.9
Year of study	Year 1	6	8.7
	Year 2	15	21.7
	Year 3	31	44.9
	Year 4	14	20.3
	Year 5	3	4.3
Teaching practice	Yes	24	34.8
	No	45	65.2

Note: To 2 d.p.

Table 2. Rotated component matrix.

Items	Component		
	1	2	3
1. I think being a teacher is both meaningful and important.	-.121	.204	<b>.622</b>
2. Individual teachers should be able to influence how other teachers think about, plan for, and conduct their work with students.	.219	<b>.519</b>	-.059
5. I am willing to observe and provide feedback to fellow teachers.	<b>.630</b>	.165	.262
6. I would like to spend time discussing my values and beliefs about teaching with my colleagues.	<b>.742</b>	.164	-.072
8. I would be willing to help a colleague who was having difficulty with his or her teaching.	<b>.589</b>	-.152	.112
9. I can see the points of view of my colleagues, parents and students.	-.027	.436	<b>.602</b>
10. I would give my time to help select new members for my school.	.368	.425	.262
11. I try to work as a facilitator of the work of students in my classroom and of colleagues in meetings at my school.	.473	<b>.560</b>	.238
12. Teachers working collaboratively should be able to influence practice in their schools.	.315	.233	<b>.549</b>
13. I can serve as a classroom teacher and become a leader in my school.	.341	<b>.582</b>	.047
14. Cooperating with my colleagues is more important than competing with them.	-.154	.090	<b>.689</b>
15. I would give my time to help plan professional development activities.	.197	<b>.764</b>	-.021
16. My work can contribute to the overall success of our school program.	-.115	<b>.672</b>	.049
18. School and university faculty can mutually benefit from working together.	<b>.596</b>	.357	.255
19. I would be willing to give my time to participate in making decisions about such things as instructional materials, allocation of resources, student assignments, and organization of the school day.	<b>.523</b>	.477	.150
23. I recognize and value points of view that are different from mine.	<b>.549</b>	.238	-.219
25. I want to work in an environment where I am recognized and valued as a professional.	<b>.544</b>	.021	.361

Notes:

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

### Exploratory factor analysis

Responses to the survey were analysed using Statistical Programme for Social Sciences (SPSS). Extractions were done to the components underlying the 25 survey items with the use of Kaiser Normalization. Principal Component Analysis was done to confirm three separate

components within the survey, whereas the analysis serves to “(summarize) the inter-relationships among the variables in a concise but accurate manner as an aid in conceptualization” (Gorsuch, 1983:2), and to establish construct validity (Bryman & Cramer, 1990). Three significant components were indicated and a graphical scree test confirmed the three-component structure. The amount of variance explained by the three factors was 39.93%. Ten out of 25 items were of low degree of common variance (i.e., below 0.49), which are undesirably included in the factors (Beavers et al., 2013). Three components were labelled: “Professional relationship with stakeholders”, “Role of teachers” and “Value of teaching” (Table 2).

#### Reliability analysis

Cronbach’s alpha was computed to check the reliability of survey items (Table 3). Internal reliability was found as reasonable (Morgan, Leech, Gloeckner, & Barrett, 2004). A Cronbach’s Alpha of 0.70 is regarded as a good internal consistency while that of 0.60 is considered as acceptable. Factor 1 and Factor 2 are above 0.70 while Factor 3 is above 0.60. Relationships amongst factors were examined using correlational analysis (Table 4), where “Professional relationship with stakeholders” is strongly associated with “Role of teachers”. Moderate relationships between “Professional relationship with stakeholders” and “Value of teaching” and “Role of teachers” and “Value of teaching” were found.

Table 3. Reliability analysis of three factors.

	Number of items	Cronbach’s Alpha	M	S.D.
F1 “Professional relationship with stakeholders”	7	0.79	3.99	0.42
F2 “Role of teachers”	5	0.73	3.74	0.51
F3 “Value of teaching”	4	0.64	4.24	0.47

Note. Scores on a 5-point Likert scale: 5=strongly agree; 4=agree; 3=no opinion; 2=disagree; 1=strongly disagree.

Table 4. Component correlation matrix.

	F1	F2	F3
F1 “Professional relationship with stakeholders”	1		
F2 “Role of teachers”	.525**	1	
F3 “Value of teaching”	.337**	.387**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

#### Qualitative study

##### Participants

15 prospective teachers with different major of study and year level agreed to participate in individual interviews (Appendix 2), which were conducted by a research assistant on campus. The purpose of study and confidentiality issues were clearly stated to the participants.

### Instrument

Semi-structured interviews were applied in exploring prospective teachers' perceptions of teacher leadership. The duration of the interviews ranged from 30 to 45 minutes.

### Data analysis

Qualitative analysis included coding the raw data, repeated listening to the interview audiotapes, and reviewing the copies of the transcribed interviews by reading and re-reading. Thematic analysis was applied using color-coding method in generating and categorizing emerging themes and issues (Stake, 1995).

### Findings

#### *Perceptions of teacher leadership*

Amongst the three factors, "value of teaching" got the highest combined mean score ( $M=4.24$ ,  $S.D.=0.47$ ), as followed by "professional relationships with stakeholders" ( $M=3.99$ ,  $S.D.=0.42$ ) and role of teachers ( $M=3.74$ ,  $S.D.=0.51$ ). Prospective teachers likely had higher levels of readiness for teacher leadership in the "Value of teaching" dimension.

#### *Factor 1: Professional relationship with stakeholders*

Prospective teachers realized the importance of being recognized as a professional. In the survey, Item 25 "I want to work in an environment where I am recognized and valued as a professional" yielded the highest mean score of 4.35 ( $S.D.=0.72$ ). Prospective teachers explained the meanings of a profession in terms of qualification, theoretical foundation, as well as practical application. They realized that recognition is important to teachers in the way that,

*When you trust teachers as a profession, basically there is more freedom for teachers to adjust curriculum, or adapt teaching...When you go to the environment where confidence is given to you, really helping increase teachers' enthusiasm and passion. (CRT, 6/1/2015)*

Few prospective teachers yet realized that people should respect each other regardless of job nature or salary. This prospect teacher expressed,

*Like other industries...there should be no difference. When they do what they have to do, you should respect them. This is unrelated to how much you earn or what job it is, we have to respect and recognize their efforts. (ARY, 27/10/2014)*

Prospective teachers less likely agreed on curriculum decision making. Item 19 "I would be willing to give my time to participate in making decisions about such things as instructional materials, allocation of resources, student assignments, and organization of the school day" got the lowest mean score ( $M=3.78$ ,  $S.D.=0.68$ ). They were discouraged to participate in collective work such as developing materials and lesson planning due to heavy workload. For example, one of them said,

*...that's very ideal if there's cooperative work, yet...how much time is needed? Individual teachers' workload has been big...to do so much...[require] so much time to work with others, and there's no guarantee about its effectiveness. (CRT, 6/1/2015)*

*...teachers' work is demanding, so if asking them to use extra time to do extra work, that's no longer teaching only, like making curriculum materials,...that's very hard...there is insufficient time to do preparation...each teacher's timetable is different...you have to use after-school hours to do that together. That's extra work. (MEL, 7/1/2015)*

### Factor 2: Role of teachers

The highest mean score within the factor "Role of teachers" is Item 11 "I try to work as a facilitator of the work of students in my classroom and of colleagues in meetings at my school" (M=3.91, S.D.=0.66), whereas they considered that collaboration is necessary for improving teaching.

*Two brains are better than one brain. ... When working together, more ideas can be created. That means, there can be more methods to teach different students as they have different needs. (THL, 27/11/2014)*

*I heard one statement saying "together everyone achieve", that means when we work together, we can brainstorm ideas together; there can be some special effects. I think teaching should be innovative. It's impossible to teach with chalk-and-talk for one lesson. Students cannot learn well. (VIC, 5/1/2015)*

*This is the teacher who knows his class well and what their needs are....I think teachers should work together to discuss and inquire. Teachers should express their ideas as they are not just a doer...they should ...make consensus...and contribute. This is also important to communicate with students because they are always observers. Their thoughts must be valuable. (IRM, 7/1/2015)*

Prospective teachers tended to hesitate towards Item 2 "Individual teachers should be able to influence how other teachers think about, plan for, and conduct their work with students" (M=3.62, S.D.=0.86), which is one of the items with the lowest mean score. This is likely due to their lack of school experience. They perceived that they could play a minimal role in influencing other teachers in schools. One prospective teacher elaborated,

*Old teachers are very experienced. Some...are of high positions...[who] put demands on new teachers. We are just new comers...old teachers' thinking is already deeply rooted. There can be big differences in their thoughts about education and student learning. (RAL, 20/1/2015)*

Meanwhile, prospective teachers made observations according to their teaching practice and school experience at school.

*[Teachers'] work ... is like "sweep the snow from your own door step" [各家自掃門前雪], that's because everybody is busy...so much to handle and won't have time to discuss....there won't be so much cooperation and idea exchange between new and experienced teachers. They may not get along so well with each other because new teachers always go with new teachers, old teachers go with old teachers, or certain subject teachers just go with those teaching the same subject. The environment is not really integrated. There's a distance between new and old teachers. (RAL, 20/1/2015)*

*...Each teacher teaches different classes...Each teacher has responsibilities. Different classes have their own characteristics...each teacher has different teaching styles, they may have different educational philosophies. Some may drill students to get 5 stars...another teacher may regard learning experience is important and academic result is not the first priority...if they come together, it's like Mars crashing into Earth. There would be conflicts...it's ineffective to improve learning. (JAW, 13/11/2015)*

The lowest mean score is Item 15 "I would give my time to help plan professional development activities" (M=3.62, S.D.=0.79). Interview data showed that limited time, lack of confidence and uncertainty about professional development are prospective teachers' common concerns.

*Teachers always work over time. How can we do much within limited time? This is really contradictory. Some want to do, yet there is so much to sacrifice. Teachers have to get dating or family time...there is so much to do at school. (OEY, 19/1/2015)*

*No matter what activities, they would prefer being participants, not planners. [because of being] incapable of planning [and unwilling to] put efforts in planning as you never know if others like your planned activities. (THL, 27/11/2014)*

*Being a freshly graduated teacher, you plan professional development activities to other teachers with four to six years of teaching experience. Are you so brave to do that? That's really hard...If you really do so, many others would say something at your back. (ROT, 20/1/2015)*

*...others...are more experienced...may teach better than me because I am young...This is really hard for a teacher to take actions in doing professional development activities for his school. (ARY, 27/10/2014)*

*When getting a teaching post successfully, it's stable. They no longer need professional development. Even...no professional development, you are still a teacher...there is no need to do professional development. So they're unwilling to put energy in doing so. (JAW, 13/11/2014)*

### *Factor 3: Value of teaching*

The highest mean score is Item 14 "Cooperating with my colleagues is more important than competing with them" (M=4.46, S.D.=0.74). Prospective teachers emphasised the purpose of being a teacher is to teach, where they realized the job nature "should" not be money-oriented or competitive in nature. They said,

*If there's competition among colleagues, you want a higher position...if you become a teacher, is it your wish to get a higher position or teach students well? (THL, 27/11/2014)*

*The focus is whether students can learn. That's not about who can teach better. It's difficult to measure as there are so many variables such as student characteristics. (IRM, 7/1/2015)*

*...there's no need to outstand yourself in a team. More important thing is to help your colleague do things better...don't need to compare because the ultimate goal is to let students learn. (VIC, 5/1/2015)*

*...communication is more important because teachers want students to learn well more than personal benefits...teachers are not that money oriented. (CRT, 6/1/2015)*

*...being a teacher requires lots of experience, more observation, knowing more, communication amongst colleagues enables me to learn more and get help. So cooperation is essential. (MIL, 26/11/2014)*

Yet, prospective teachers found it hard to understand the surroundings in school. The lowest mean score is Item 9 "I can see the points of view of my colleagues, parents and students" (M=3.96, S.D.=0.55). This possibly is owing to generation gap and lack of time. During the interviews, prospective teachers shared,

*there is some blockage between teachers and students. It's hard to understand everyone's viewpoints. Sometimes teachers regard students are immature...students at puberty stage are more rebellious and don't like cooperating with teachers. Teachers find it difficult to communicate with them. (THL, 27/11/2014)*

*...little time for them to sit and discuss together. There's not enough time for teachers to talk with students. So it's hard to understand and communicate well with each other. (LOT, 14/1/2015)*

### *Teacher leadership and demographics*

One-way ANOVA tests found significant difference existed between year level of study and perceptions of teacher leadership (Table 5). Specifically, for Factor 1 "Relationship with stakeholders", Year 4 student teachers had a relatively higher mean score (M=4.19, S.D.=0.35). For Factor 2 "Role of teachers", Year 1 had a higher mean score (M=4.17, S.D.=0.43)

*Table 5. One-way analysis of variance (ANOVA) of teacher leadership by year level.*

		Sum of Squares	df	Mean Square	F	Sig.
F1	Between Groups	1.704	4	.426	2.654	.041
	Within Groups	10.273	64	.161		
	Total	11.977	68			
F2	Between Groups	2.599	4	.650	2.768	.035
	Within Groups	15.025	64	.235		
	Total	17.624	68			
F3	Between Groups	.896	4	.224	1.013	.407
	Within Groups	14.158	64	.221		
	Total	15.054	68			

## Discussion, conclusion and implications

### *Teacher education*

In the study, prospective teachers' readiness for teacher leadership in the "Role of teachers" dimension is weaker, especially planning professional development activities and influencing others in instructional matters. This may be related to lack of actual situated experience, where prospective teachers did not understand daily operations in schools such as working relationships with others. On the other hand, as prospective teachers may uphold high values of being a teacher and be inclined to being "naïve" and less ready for the "complexities" of school context. Hence, more authentic working experience should be provided to prospective teachers, where time factor seems to be an influential factor affecting teacher leadership, which is always associated with workload problem as rooted in different aspects such as level of school support, teacher autonomy, collaboration amongst staff (Ingvarson *et al.*, 2005). More attention should hence be paid to how to give support to prospective teachers in developing teacher leadership throughout teacher education program, including teaching practicum.

Besides, prospective teachers' teaching efficacy and understanding of professional development seemingly are not strong. In the study, they showed doubts about their own teaching capabilities and hence lacked confidence in sharing teaching ideas with experienced teachers. This most probably requires reflection upon empowerment opportunities through current teacher education, and development of appropriate teacher development programs for professional growth.

### *Future research*

There are limitations in the study. First, due to a limited number of participants, the findings may not be generalizable to prospective teachers from other contexts. The survey can be further examined in other groups of prospective teachers. Second, prospective teachers' perceptions may be subject to changes during their teacher education program. There is a need to explore factors influencing teacher leadership development in teacher education. Follow-up studies can be done to examine how this group of prospective teachers perceive and experience teacher leadership when working in schools. Further studies can be conducted to a greater sample to explore relationships between perceptions of teacher leadership and demographic characteristics.

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## Appendices

*Appendix 1.* Response rate of the online survey.

Course	N	Response %
2110A	27/44	61.37
3110A	26/51	51.0
3110B	16/32	50.0

*Appendix 2.* Background information about participants in qualitative study.

Name <sup>1</sup>	Gender	Year of study	Major	Teaching Practice
SEL	F	1	Chinese	N
ALT	F	2	Chinese	N
ARY	M	2	Chinese	N
JAW	M	2	Chinese	N
MIL	M	2	English	N
THL	M	2	Math	N
MEL	F	2	Math	N
ROT	M	3	English	N
VIC	M	3	Math	N
RAL	M	3	P.E.	N
CRT	F	4	Chinese	Y
EYH	F	4	English	Y
OEY	M	4	Liberal Studies	Y
LOT	M	4	P.E.	Y
IRM	F	5	Liberal Studies	Y

Note<sup>1</sup>: in pseudonym

## Part Four

### Key pedagogies for and across educational sectors

Teachers draw on knowledge of learners, content, curriculum and context to plan for learning and respond to their learners as they teach through engagement in learning-focused interactions. Expert teachers adapt their signature pedagogical practices flexibly depending on the learners' ages, curriculum requirements, context and content area. Examining and sharing differences and commonalities between early childhood, primary, secondary and tertiary teachers (including those teaching in professional and work-based learning settings) might illuminate underpinning pedagogical principles.

Questions which challenged the authors in this sub-theme of *Teaching for tomorrow today* were: What do expert teachers do – regardless of age, subject and context – to enhance learning for students? What pedagogical principles are transferable from context to context, curriculum area to curriculum area? What constitutes powerful pedagogy in teaching?

## Identifying teaching practices to support students of all abilities

*Amy Berry & Nives Nibali*

The University of Melbourne

Analysis of Australia's performance in PISA shows an overall decline due in part to a decrease in the number of students performing at the top levels of achievement (Thomson, 2011). Evidence suggests that while teachers are often skilled in identifying interventions for the lower levels of development, they are less equipped to do so for higher order skill development (Griffin, Care, Francis, Hutchinson, & Pavlovic, 2012). The study discussed in this chapter is part of a project designed to provide support for teachers to develop the potential of all students by developing a conceptual framework that will guide exploration of the relationship between teacher practices and student achievement. Given that there are varying levels of and consistency in student achievement and teaching practices (between teachers and classrooms), the study investigates how we can capture what teachers do in the classroom and how this information can be linked to student achievement (Nye, Konstantopoulos, & Hedges, 2004; Phillips, Balan, & Manko; Skourdoumbis & Gale, 2013; Stronge, Ward, Tucker, & Hindman, 2007).

Regardless of how and why teachers make decisions about classroom practice, it is clear that different teachers do different things. Nye et al. (2004) identify a link between differences in the ways that teachers support growth in their students and different areas and rates of student achievement. Skourdoumbis and Gale (2013) articulate this as a 'straight line' between teacher behaviour and student achievement. The influence of teacher practice on student outcomes has recently been "aimed at redressing student underachievement" (Skourdoumbis & Gale, 2013, p. 893). Specifically, this study addresses inconsistent growth in student achievement in the top quartile (Griffin et al., 2012), a trend which is placing high ability students at risk of underachieving. Identifying and describing behaviours and practices of teachers who achieve growth in this group commensurate with growth in other groups (that is, growth that is

consistent across all quartiles), may give a better understanding of the link between teacher effect and student achievement and therefore a better understanding of which behaviours best support student growth across all quartiles.

Although teacher effect is at least comparable with other factors that influence student outcomes, some categories of behaviour are linked to student achievement more significantly than others (Hattie, 2012; Morgan, Hodge, Trepinksi, & Anderson, 2014; Nye et al., 2004). The Australian Institute for Teaching and School Leadership (AITSL) specifically identifies some such categories: the establishment of learning goals, the planning of learning programs, the use of teaching strategies, the selection of resources, communication in the classroom, the support of student participation, the management of classroom behaviour and activities, the maintenance of student safety, the use of assessment and evaluation practices and the use of knowledge of content and pedagogy (A.I.T.S.L., 2012). Danielson (2011), Creemers and Kyriakides (2006) and Coe, Aloisi, Higgins and Major (2014) have created categories for identifying and evaluating teacher performance by prioritising similar sets of behaviours over others. Increasingly, the value of such frameworks is in their potential to support positive development in teacher practice and student growth, rather than in the context of accountability or the “ranking of student and teacher performance” (Skourdoumbis & Gale, 2013, p. 893). Adopting aspects of these frameworks may prove useful in identifying and describing teacher classroom behaviours that influence student achievement.

Danielson’s *Enhancing professional practice: A framework for teaching* (2011), includes a comprehensive framework for teaching that identifies four Domains, 22 Components and 38 Elements that have been “documented through empirical studies and theoretical research” as supporting growth in student achievement (Danielson, 2011, pp. 1-13). The four Domains clearly identify aspects of teacher behaviour: Planning and Preparation, The Classroom Environment, Instruction and Professional Responsibilities. Through a literature review, Minnick et al. (2012) conclude that Danielson’s model has the crucial elements to support conversations around the nature and identification of effective teaching, but falls short of establishing connections between these behaviours and student outcomes. Nevertheless, Danielson’s framework remains the basis of subsequent models of teacher behaviour.

Phillips et al. (2014) review a variety of teacher effectiveness frameworks, including the Teacher Advancement Project (TAP), Peer Assessment and Review (PAR), the Value-added Model (VAM), Plan Do Study Act (PDSA), the Common Core Standards and the Danielson framework, to identify which teacher behaviours and which tools for evaluating teacher behaviour are most effective. TAP focuses on three elements of the Danielson model: designing and planning instruction, the learning environment and instruction; while the VAM model focuses on “non-teaching aspects of student achievement” (Phillips et al., p. 5). Other models exhibit various combinations of the Danielson elements, but Phillips et al. conclude that there are five elements crucial for good teaching: planning and preparation, the classroom environment, instructional delivery, professionalism and collaboration, and partnership (Phillips et al., p. 2) – the final element a notable addition to the Danielson model. Creemers and Kyriakides (2006) use a dynamic model of educational effectiveness to identify teacher behaviour. This model includes comprehensive and detailed analysis of a practical and hands approach to identifying factors of teacher behaviour. This dynamic model includes eight

Teacher Factors – orientation, structuring, questioning, teacher modelling, application, classroom learning environment, management of time and assessment – each of which has five associated Dimensions – frequency, focus, stage, quality, differentiation – that can be used to identify and analyse teacher behaviour in considerable detail.

Finally, Coe et al. (2014) suggest that the components of great teaching can be distilled down to six categories of varying impact. These categories address teacher knowledge of the content taught, how the classroom is set up, how the classroom is managed, how well instruction is delivered, what teachers believe, and what informs the decisions teachers make. The suggestion is that whatever framework is adopted or constructed, it is these elements and their corroboration against the alignment between teacher practice and student outcome, that may be the way forward (Coe et al., 2014).

The selection or design of a framework, then, should be informed by the data that may be collected; therefore, there is a need to collect some exploratory data and trial a variety of frameworks, components, and/or categories, before exploring the frameworks described in this chapter.

This study within a project is designed to explore the practice of teachers in whose classes students in all quartiles have achieved growth. Of interest is the range of practices used by these teachers for the exploration of possible links with student learning outcomes.

## Method

The range of teacher practices needs to be understood within a framework of educational delivery in the classroom. For this reason, a qualitative case study approach informed by grounded theory was adopted. The choice of grounded theory aligns well with theory building rather than testing (Strauss & Corbin, 1998).

### *Participants*

Teachers selected were those whose students, in a previous study (Zhang, Griffin, & Care, 2015), had achieved growth in reading comprehension across all quartiles. The results were repeated for numeracy (Care, Griffin, Zhang & Hutchinson 2014). An analysis of achievement scores from the study identified 10 teachers from nine schools based on their reading comprehension results, and 18 teachers from eight schools based on their results in numeracy. In order to facilitate ease of access for observations and the planned focus group, 14 teachers from schools within the Melbourne metropolitan area were selected to participate: three for reading comprehension, nine for numeracy and two for both reading and numeracy. There were ten females and four males, ranging in experience from beginning teachers to those who had been teaching for more than 20 years. Nine teachers worked in composite classrooms and five in straight year level classrooms.

### *Data collection*

Data was collected from focus group discussions, planning documents, teacher questionnaires and classroom observations.

### Focus group

A focus group was conducted in order to gain an understanding of the typical practices of these teachers in the context of reading comprehension and numeracy instruction, as well as their perception of factors that may have contributed to the achievement growth of their students. A combination of open-ended questionnaires followed by a small group, semi-structured interview was used, which resulted in written responses from participants and researcher notes based on the discussions.

### Planning documents and questionnaires

Following the focus group, questionnaires were sent to teachers to collect information about lessons to be observed. Eight teachers were observed for two lessons each resulting in 16 observations in total. In an attempt to increase the response rate, teachers were offered the choice of providing their own planning documents or responding to the questionnaire. Questions functioned as open-ended prompts and were informed by learnings from the focus group. They were designed to gather information about pre-planning considerations, learning intentions, lesson structure, activities and plans for grouping.

### Observations

The construction of an observation schedule was informed primarily by the categories that had emerged from the focus group, with existing literature around effective teaching providing further support. Evidence that would deepen understanding of the practice of these teachers was collected using behaviour indicators and event coding. Observers produced narrative field notes to contextualise coding and to address issues of consistency and reliability, following (Brown, 1997).

### Analysis

The data were analysed to identify emerging categories in relation to typical practice and teacher perception of factors contributing to growth. Subsequent stages of analysis allowed further specification and the identification of subcategories as represented in Figure 1 (although this chapter does not explore the category of Classroom Environment).

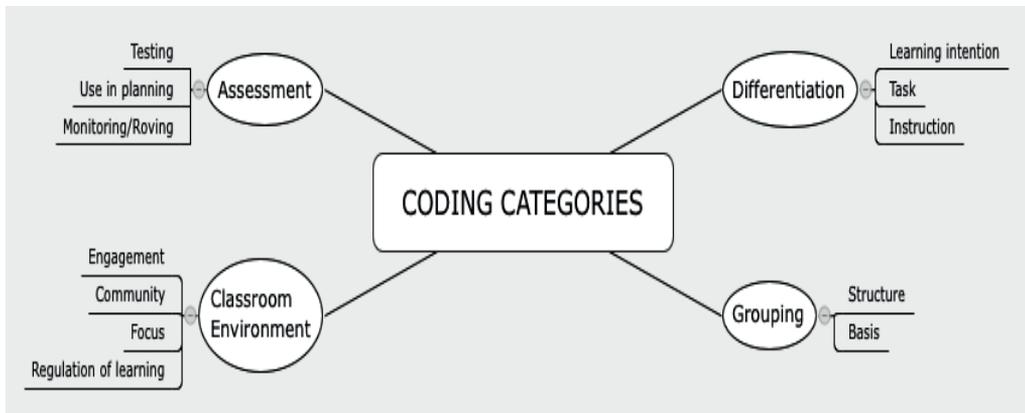


Figure 1. Coding categories

*Focus group*

The focus group revealed common patterns in the reported practice of these teachers. The use of assessment as described by these teachers was both varied and continuous and included:

- The use of informal assessment practices to monitor student understanding during lessons
- The use of formal assessment practices such as teacher developed pre-tests and externally developed standardised tests.

The lessons were structured around whole class instruction, small group or individual tasks and whole class reflection or review. Many teachers described the selection of groups based on students with mixed ability, while other groups were constructed of students with similar ability. A third category described was that of grouping students together for targeted teaching. There were also teachers who reported the importance of flexibility in grouping where students could be moved in and out of groups as required.

In addition to grouping, most teachers spoke of the importance of targeting tasks to students' zone of proximal development (ZPD). ZPD is defined as “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers” (Vygotsky, 1978, p. 86). Despite a consensus on the importance of targeting the ZPD, the described practices varied widely in terms of the level of planning and teacher skill required. At a base level, the practice was confined to targeted teaching to small groups of students. More complex systems involved selecting different tasks for different groups, adjusting the complexity of a single task to meet the needs of different groups, adjusting the complexity of questions in whole class discussions and adjusting the level of support for different groups. Also noted was the impact of careful planning, resourcing and professional support on lesson preparation. Within lessons, focussing on higher order thinking, setting clear goals, communicating expectations and providing feedback to students were identified as key elements for success.

Participants were asked to reflect on the factors that they believed contributed most to the growth of both high ability and low ability students. The results, summarised in Table 1, reflect the perceived importance of continuous assessment for all students. However, while there was consensus concerning what the teachers perceived as key to the growth of lower ability students, the development of higher ability students was more contentious. In particular, the use of peer teaching and peer mentoring was praised by some and condemned by others; there was also a clear split between those teachers who chose to accelerate their high ability students through the curriculum and those who focussed on deepening student understanding or making broader connections between concepts and subject areas.

*Observed lessons*

Most lessons had a single focus for the whole class. Some teachers also identified different learning intentions or focuses for different groups of students. Only two teachers made explicit links to curriculum documents within their planning. In terms of assigning tasks within lessons, there were clear differences in the practices of these teachers (Table 2). It is important to note

that there were often multiple tasks within the same lesson and that the summary provided is of teacher practice rather than individual tasks.

*Table 1.* Perceived factors contributing to growth

Lower Quartile Students	Upper Quartile Students	All Students
<ul style="list-style-type: none"> <li>• Opportunities for revision, repetition and consolidation</li> <li>• Building confidence</li> <li>• Encouraging ownership of learning</li> <li>• Safe and supportive environment</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunities for higher order thinking</li> <li>• Encouraging and supporting risk taking</li> <li>• High expectations</li> <li>• Clearly communicated expectations</li> <li>• Open-ended tasks</li> <li>• Providing challenge</li> <li>• Opportunities for student choice</li> <li>• 'Optimal' levels of competition</li> <li>• Opportunities to work with peers</li> </ul>	<ul style="list-style-type: none"> <li>• Ongoing assessment to identify student need</li> <li>• Communicating goals and expectations</li> </ul>

*Table 2.* Approach to task selection

Tasks	Number of teachers (n = 8)
Same task for all students	6
Different tasks for different groups	5
Combination of same and different tasks	4
One type of task only	4

When implementing a common group task, teachers made adjustments to increase either the challenge or the level of support for some students. Although most tasks had a narrow skill focus designed to consolidate or develop a specific skill, some tasks, either by design or in implementation, invited a deeper conceptual understanding and the development of social skills, metacognitive skills and/or self-regulated learning strategies.

All of the teachers observed used a whole group approach to:

- Review previous lessons
- Introduce new content and strategies
- Provide instructions
- Reflect on learning or the task.

Students applied strategies and procedures individually or within small groups. Written work was almost always completed individually, even when students worked in small groups or pairs. A range of groups was evident including both teacher-selected and student-selected forms. At times student-selected groups were based entirely on student choice and at other times they were secondary to teacher-defined groups – for example, student choice of partner

within an existing teacher-defined ability group. The wide variety of groups across lessons and within single lessons indicated an approach to grouping that served a range of purposes from skill development and instruction to engagement and personal development.

In addition to a common approach to lesson structure, there were several key features evident within most of the observed lessons, as illustrated in Figure 2.

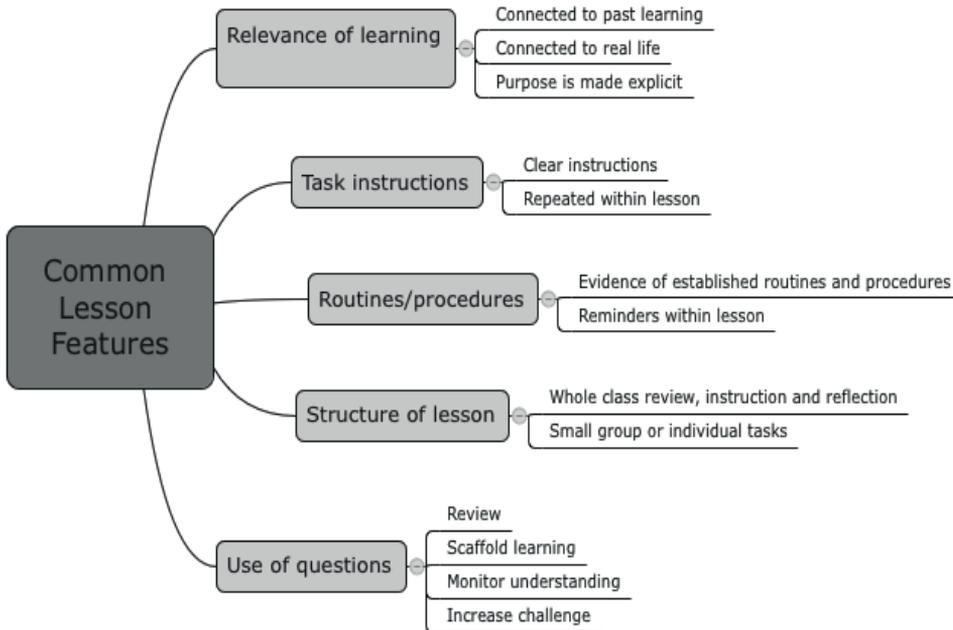


Figure 2. Common lesson features

Some teachers referred to the use of assessment data (classroom level pre-tests and school-level standardised testing) to inform grouping decisions and task selection; however, this connection was not made explicit by many of the teachers observed. During the focus group discussions, teachers spoke about the practice of ‘roving’ or ‘roaming’ during lessons as a means of monitoring student understanding and intervening as needed. In a study of Japanese classrooms (O’Keefe, Xu, & Clarke, 2006), the practice of ‘Kikan-Shido’ or ‘between desks instruction’ has been identified as a distinct and common lesson event that serves several functions including monitoring and guiding student activity, and this practice was clearly evident in all classrooms observed and served a variety of functions, as summarised in Table 3.

Table 3. Functions of teacher roving

Monitoring	Intervention
<ul style="list-style-type: none"> <li>• Task entry</li> <li>• Task progress</li> <li>• Behaviour</li> <li>• Understanding</li> <li>• Use of resources</li> </ul>	<ul style="list-style-type: none"> <li>• Scaffolding or explicit teaching to individuals or small groups</li> <li>• Encouragement</li> <li>• Feedback on the task</li> <li>• Feedback on behaviour</li> </ul>

## Discussion

A deeper understanding of the practice of the teachers selected for this study, may offer some insight into the learning growth demonstrated by their classes.

The use of ability grouping and differentiated tasks was common in many of these classrooms. When one task was chosen for the whole group, there was evidence that teachers made adjustments during the implementation to increase the challenge for some students and increase the support for others. These practices indicate an approach to teaching that sees diversity of needs and learning paths as a natural feature of the classroom. References to targeting teaching and tasks to students' point of need were common and not limited to students of lower ability. There was an expectation that all students would be provided with opportunities to extend their current level of skill and understanding. This implies a developmental approach to teaching as opposed to a deficit approach (Griffin & Robertson, 2014).

The continuous monitoring of students and the ability to respond and adjust tasks and teaching in order to meet the needs within their classrooms, indicates a commitment to ensuring that there was both sufficient cognitive demand for students to grow and adequate support for them to engage successfully with the task.

Feedback was focused on the use of strategies and student effort rather than on task completion or accuracy.

The behaviours and categories observed give some indication of the frameworks that may be required in a tool that may serve to collect the required data. This will be explored in subsequent stages of the project.

### *Limitations*

An analysis of pedagogical practices was limited by the lack of video or audio transcription which prevented a micro-analysis of teacher discourse. In addition, the tool used in observations was exploratory rather than definitive, and did not provide sufficient detail of the context of pedagogical behaviours to support a detailed analysis of specific practices such as questioning or feedback. The accompanying field notes varied in the level of detail provided and issues of observer bias and inter-coder reliability may have impacted on the analysis of data in this category (Brown, 1997). As a result, the analysis focused on identifying general patterns across lessons.

## Conclusion

Although there were differences across this group of teachers, there were noticeable similarities in the way they viewed student diversity within their classrooms and in their commitment to growth for all students. This group of teachers was not selected at random and there is no suggestion that they are representative of the wider population. What this study offers is a deeper understanding of classrooms and practices that appear to be supporting growth for all students. The task for future stages of this project is to build on this understanding and investigate the relationship between the emerging categories and student achievement by including a wider group of teachers.

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## Competence, confidence and attitudes as factors in mathematics learning and teaching for pre-service teachers

*Robyn Brandenburg & Peter Sellings*

Federation University

The mathematical ‘landscape’ (Meaney & Lange, 2012) that constitutes pre-service teacher education is complex. Pre-service teachers enter undergraduate education courses with diverse expectations and experiences in mathematics, varying degrees of mathematical content knowledge (MCK) based on their pre-program school studies and assumptions about their roles as learners, graduates and teachers of mathematics. These University students also arrive with various attitudes to mathematics, and to mathematics education courses (Beswick, 2006, Henderson, 2012) and there is extensive research literature that suggests unless pre-service teacher have their attitudes and assumptions challenged they will ultimately teach in the same ways that they were taught (Brandenburg, 2008). Such differing attitudes and emotional responses are due to previous experiences in mathematics and the research suggests that, if the attitudes are negative they can be very difficult to change. If such negative attitudes do not change, they can also affect the way that pre-service teachers take responsibility for their own mathematical learning and the way that they teach students in their classes once they are fully qualified to do so (Henderson, 2012).

### Testing imperatives

In Australia, teacher education graduates are under increased scrutiny regarding their “readiness to teach”. The most recent national report on teacher education, *Action Now: Classroom Ready Teachers* (February, 2015) recommends that national numeracy testing be implemented to demonstrate that “pre-service teachers are within the top 30 percent of the population in personal ... numeracy” (p. xiii). A further recommendation states that “Higher

education providers identify entrants who may need additional support to meet the academic requirements of the program, and provide them with targeted support to ensure all pre-service teachers have the academic skills needed to become effective teachers.” (p. xiii). Our experience as teacher educators suggests that not all students are competent and confident with mathematics learning and teaching. How then, can teacher education programs ensure that their graduates can achieve high standards in mathematics content knowledge and pedagogy?

Our longitudinal study focuses on identifying and understanding more about pre-service teachers’ beliefs and attitudes, (confidence, motivation) related to mathematics and mathematical content knowledge (MCK). As Beswick, Callingham and Watson (2012) suggest to fully understand any conception of teacher knowledge, and thereby gain a holistic understanding, we need to include beliefs as an integral component because “these constructs are so closely intertwined in the context of practice” (p. 73). We acknowledge that learning and teaching mathematics is also influenced by previous mathematical experiences and the learning environment must be one where pre-service teachers feel able to take risks in their learning. It is through identifying and challenging their firmly held - and often unchallenged - assumptions that some common misunderstandings and misconceptions are revealed (Brandenburg, 2008).

### Mathematical content knowledge (MCK)

There is extant research literature that focuses on the often-limited mathematical knowledge (Callingham & Beswick, 2011; Hurst & Cooke, 2012; Wilkins & Ma, 2001), attitudes, beliefs and perceptions (Beswick, 2006; Goulding, 2002; Ponte & Chapman, 2008; Tobias & Itter, 2007; Young-Loveridge, Bicknell & Mills, 2012) that pre-service teachers exhibit. Young-Loveridge, Bicknell and Mills (2012) espouse the importance of pre-service teachers having sufficient mathematical content knowledge (MCK) to meet the highly demanding role of teaching primary mathematics. A key challenge for mathematics teacher educators is to build on the pre-service teachers existing MCK and in doing so, identify areas of the mathematics curriculum that require development and extension. As part of this development of MCK, the identification of fundamental and representative misconceptions is crucial (Livy, Muir & Maher, 2012; Young-Loveridge, Bicknell & Mills, 2012). Research reveals that MCK is not sufficient to meet the demands of teaching mathematics (Ward & Thomas, 2007). In their study of all discipline areas, Ward and Thomas (2007) found that teachers with lower MCK also had lower levels of PCK and teachers with higher MCK did not always exhibit higher levels of pedagogical content knowledge (PCK). Hurst and Cooke (2012) also suggest that pst attitudes and anxiety levels must be considered as psts move towards mathematical competency. The MCK of psts is often seen as lower than is desirable with researchers such as Callingham and Beswick (2011) and Young-Loveridge, Bicknell and Mills (2012) highlighting the fact that primary pre-service teachers often attempt to apply mathematical rules to calculate answers rather than use the knowledge of particular mathematical concepts to logically determine how to solve a particular mathematical problem. The complicated process of developing MCK (Meaney & Lange, 2012) including the role of testing in reinforcing a ‘knowing of rules’ mentality contributes to the complications around developing pre-service teacher’s mathematics learning. Meaney and Lange (2012) further espouse that pre-service teachers need to be exposed to mathematical environments that differ from those that they experienced when

they themselves were students. An enriched, proactive and experienced-based mathematical environment that focuses on challenging firmly-held (and often unchallenged) assumptions can lead pre-service teachers to a better understanding of what it means to ‘do’ mathematics, as well as creating a desire to learn mathematics (Meaney & Lange, 2012).

### Mathematical competence and confidence

The mathematical confidence and competence of pre-service teachers has recently generated national attention. In a recent report, Bita (*The Australian*, Dec. 2014b) highlighted that a decline in the performance of students in mathematics has led to a shortage of fully qualified mathematics teachers, as students are not choosing to study mathematics at University level. Bita (2014b) further reports on the mathematics performance of students studying education courses at university level suggesting that “maybe 25% have a good knowledge. They struggle with fractions and proportional reasoning and anything to do with Algebra” (p. 17). In yet another report, Bita (*The Australian*, 2014a) stated that the Australian federal education minister had flagged the need to ensure that students graduating from Teacher Education courses met minimum standards in both numeracy and literacy so that they were better equipped to meet the rigours of teaching in schools. From 2016, the Australian Government will introduce compulsory national numeracy and literacy testing for all pre-service teachers and they will be required to reach a specified standard in both disciplines prior to graduation (Borello (2015). National and compulsory numeracy and literacy testing is one of thirty-eight recommendations in the recently released Teacher Education Ministerial Advisory Group (TEMAG, Craven et al., 2014) report. Another of the key recommendations that has particular relevance for mathematics education is that higher education providers use national testing to ensure that their graduates from teaching courses are in the top 30% of the population in personal literacy and numeracy. This recommendation of testing of pre-service teachers before they are eligible to graduate highlights the importance of teaching courses in university developing confidence and competence in all teaching students around the key area of mathematics.

Developing pre-service teacher mathematical competence and confidence are critical if graduates are to experience success as beginning teachers. Hurst and Cooke (2012) identify factors that assist students to become increasingly confident in their mathematics ability while simultaneously building their competency. Key factors identified include social constructivist teaching and targeted professional learning. They also suggest that the issues of competence and confidence need to be approached carefully and with compassion, suggesting that one such way of doing this is for pre-service teachers to develop a “personal mathematics plan” (Hurst & Cooke, 2012) in which pre-service teachers have access to testing and be able to monitor the effect of targeted professional learning. Teachers also need to have positive attitudes towards mathematics so that they are able to inspire students that are in their own classes (Hurst & Cooke, 2012). Furthermore, Galligan and Hobohm (2014) suggest that mathematical competence or “academic numeracy” is not just an issue for tertiary mathematics educators but rather an issue for all university level educators since “all university courses require students to have some level of mathematical skills (p. 1).

The issue of pre-service teacher confidence and competence in mathematics education courses is universal. For example, in a study conducted by Verschaffel, Janssens and Janssen (2005) on the development of mathematical competence in psts in Belgium, it was revealed that by introducing a pre-test, the levels of mathematical competence among university students enrolled in a course that would allow them to be elementary school teachers, were of concern. This supported the common practice in Flemish teacher education courses of spending much of the available instructional time to develop mathematical competence rather than teaching the pre-service teachers pedagogies that would help them teach students once they complete their courses. The study conducted by Verschaffel, Janssens and Janssen (2005) also highlighted that students performed better in the area of number and arithmetic than in the area of measurement and geometry. In another international study, Henderson and Rodrigues (2008) researched reported levels of competence and confidence in Scottish schools. This study by Henderson and Rodrigues (2008) found that the mathematical competence of their pre-service teachers was not necessarily aligned to the students' previous mathematics education and did not ensure that they had the confidence in the skills that they already possess. This highlights the importance of universities working with their potential primary teachers to be not only competent in what they are teaching, but also to possess the confidence in their own ability to imbue this competence in their own students when they teach.

### Aims and research questions

The overall aim of our research was to identify pre-service teachers (n= 185) who were completing the Bachelor of Education Degree and who required assistance with their mathematical conceptual and pedagogical understanding, and subsequently provide an intervention that will assist them in their understanding. The key research question was: What differences and similarities in confidence, competence and attitude are shared between pre-service teachers who have studied Year 12 mathematics and pre-service teachers who have not studied Year 12 mathematics. To do this we ascertained the entry-level understanding of basic mathematical knowledge that was determined using a diagnostic test, and the self-reported confidence and competence was ascertained via an online survey. Researching the impact of pre-service teacher confidence, competence and attitudes enabled us to revise and refine our mathematics education courses to better meet students' needs and contribute to the mathematics and teacher education research agenda by providing research about the most effective means of supporting the mathematical development of pre-service teachers and developing their capabilities.

### *Background to the study*

In 2010, Federation University Australia (then University of Ballarat) identified that a number of pre-service teachers in the Bachelor of Education program needed to further build their mathematical content skills (MCK) and pedagogical understanding in order to comprehend and teach mathematics more effectively. In response to this need, a hurdle task was introduced in the form of a mathematics test. This multiple choice test required pre-service teachers to demonstrate a wide range of mathematical skills, and importantly, required students to demonstrate these skills to a mastery level requiring them to gain a mark of 90% or greater

to demonstrate this mastery level. More recently, with the imminent introduction of a numeracy test for teacher registration, Federation University Australia has further strengthened this requirement by linking this testing to the Australian Core Skills Framework (ACSF) level four and redesigning the test to be a numeracy competence test rather than the previously used mathematics test. Importantly, this redesigned multiple choice test, still requires students to demonstrate skills to a mastery level, however, through careful design, the numeracy test can identify and diagnose misconceptions students may have, giving academic staff the ability to determine the topic areas that are misunderstood and provide support in these topic (content) areas.

After students completed the numeracy test, the tests were immediately marked and students who did not show mastery of the skills tested, were questioned further about each incorrectly answered question to determine whether there was a conceptual misunderstanding or simply an error that they were unlikely to repeat. This information about conceptual misunderstanding was then used to develop support material for students who had formed these misconceptions. The support material developed depends on the type of misconception, but all support material is presented using a social constructivist approach, encouraging pre-service teachers to discuss their current understanding and how their understanding is changing as a result of the support material.

## Methodology

This research project draws on quantitative data, including the test results from a diagnostic test and an Online Survey (n=66, HREC Approval form for project A14-101 'Mathematics Intervention to assist and support pre-service teacher's capabilities, attitudes and understanding about mathematics content and pedagogy'). The multiple-choice diagnostic test was designed so that incorrect alternatives were based on common misconceptions such as those discussed in measurement by Gough (2008). An example of a measurement question was "The perimeter of a square is 32cm. What is the area of this square?" The online survey was completed immediately after the students had completed the diagnostic test and took approximately 10-15 minutes to complete. The survey contained questions on attitudes to mathematics, confidence in carrying out mathematical computations and motivation in mathematics and included questions like "I am confident when working with fractions and decimals". The online survey data (Likert Scale/short answer responses) was collated, organised and analysed according to emergent themes (Lankshear & Knobel, 2004).

## Competence - overall test results

Sixty-six pre-service teachers (psts) agreed to participate this study. These pre-service teachers have diverse mathematical backgrounds and these mathematical backgrounds were initially separated into two categories: the first included students who had completed a Year 12

mathematics course of study and the second being psts that had not completed a Year 12 mathematics course of study. These results are shown in Table 1.

*Table 1: Overall test results*

	Sample Size	Mastery	Developing
Overall	n=66	63.6%	36.4%
Year 12	n=50	70.0%	30.0%
Lower Level	n=16	43.7%	56.3%

The results shown in Table 1 suggest that psts completing the Bachelor of Education course having studied a Year 12 mathematics course were significantly more likely to demonstrate mastery of the competencies contained in the numeracy test than students who had not studied a Year 12 Mathematics course. This highlights that psts appear to have a better understanding of mathematics if they have completed a higher course of study. To further investigate this link between previous study and mastery of mathematical content, test scores were then grouped into three bands. The first band (Band 1) were students who had successfully demonstrated mastery of the test. The second band (Band 2) were students who had scored more than 80% but less than the required 90% to demonstrate mastery. Students who tested in Band 2 were considered to be students who needed some brief one-one support in the areas where they had made mathematical errors. Band 2 students are considered to be approaching mastery. The third band (Band 3) were students who had scored less than 80%. Students who tested in Band 3 were considered to be students who needed substantial mathematical support before they were likely to pass the level 4 ACSF numeracy test. Band 3 students are considered to be in the acquiring skills phase of learning. Table 2 shows the test score breakdown in terms of the three bands.

*Table 2: Test results as bands (mastery, approaching, acquiring)*

	Band 1 (Mastery)	Band 2 (Approaching)	Band 3 (Acquiring)
Overall	63.6%	25.8%	10.6%
Year 12	70.0%	22.0%	8.0%
Lower Level	43.7%	37.6%	18.7%

Table 2 shows that significantly more of the psts tested who had not studied a Year 12 Mathematics course were in the acquiring band than for those who had studied a Year 12 Mathematics course. To further examine the student tests, the test results were separated into four content areas: 1) Whole Number, 2) Measurement, 3) Chance and Data and 4) Fractions,

including the related mathematical areas of decimals, percentages and ratio. Table 3 shows a breakdown of the test items into these categories.

### Confidence and attitude

Students were asked a range of questions that examined their attitudes and confidence in mathematics areas. Responses to questions were given by students on a 6 point likert scale, where (1) represents strongly disagree, (2) disagree, (3) mildly disagree, (4) mildly agree, (5) agree and (6) strongly agree. Multiple questions in each of the three key areas were asked and the responses of each student was averaged to determine whether or not they had responded in a positive (agree) or negative (disagree) manner. Percentages of students that were positive and negative in each area were then calculated.

*Table 3:* Confidence and attitudes expressed in terms of highest level of mathematics studied.

	Confidence		Attitudes	
	Positive	Negative	Positive	Negative
Overall	80.3%	19.7%	90.9%	9.1%
Year 12	84.0%	16.0%	92.0%	8.0%
Lower Level	68.8%	31.2%	87.5%	12.5%

Table 3 shows that the confidence varied significantly when expressed in terms of highest level of mathematics studied. Students who had completed a Year 12 mathematics subject were more confident in mathematics than students who had not completed a Year 12 mathematics subject. Attitudes to mathematics did not vary greatly when expressed in terms of highest level of mathematics studied. The results in table 3 can be further examined through examining the survey responses for each student and categorising them as strongly positive, slightly negative or positive and strongly negative.

Table 4 highlights that in terms of confidence there exists increased confidence among pst who have completed a Year 12 Mathematics course. While there are a similar percentage of students who were slightly positive or negative about their confidence, there is also higher negativity in students who have not completed a Year 12 mathematics course. With relation to pst attitudes, students who had not completed a Year 12 mathematics course were more polarised than students who had completed a Year 12 mathematics course, with higher proportions of both definitely positive and definitely negative given by students who had not completed a Year 12 mathematics course.

*Table 4:* Banded confidence and attitudes expressed in highest level of mathematics studied

	Category	Confidence	Attitudes
Strongly Positive	Overall	45.7%	31.5%

	Year 12	48.7%	27.3%
	Lower	36.6%	40.6%
Slightly Positive or negative	Overall	44.0%	43.9%
	Year 12	43.7%	52.1%
	Lower	44.6%	32.3%
Strongly Negative	Overall	10.3%	22.6%
	Year 12	7.6%	20.6%
	Lower	18.8%	27.1%

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### Findings and areas for further investigation

This study found that the psts who had completed an approved year 12 mathematics course were more likely to demonstrate mastery on the ACSF Level 4 mathematics test and the psts who had not studied an approved Year 12 mathematics course were more likely to score lower on this mathematics test and require more support to improve their mathematical skills and knowledge. It also revealed that the psts who had completed an approved Year 12 mathematics course gave significantly higher responses to survey questions about mathematical confidence. And, whilst the psts who had not completed an approved Year 12 mathematics course reported that they were significantly less confident with computations in most mathematical content areas, they reported that, in terms of attitude, they were almost as positive as their Year 12 studying counterparts.

There are a number of areas for further investigation that arise from this section of the larger study. These include the investigation of other factors such as gender and Tertiary entrance rank and what effect these factors have on competence and confidence. Examining the effectiveness of the undergraduate mathematics course in building both competence and confidence is another area that requires further investigation. While some psts readily accept additional support to build mathematics competence, others prefer and choose to only complete the required mathematics education subjects. It might be possible to examine how mathematical competence improves for these psts as compared to students who undertake additional support. It also must be noted that the sample ( $n=66$ ) is a relatively small sample. Students who have started their course this year (2015) will be invited to be a part of this study so that results can be collected from a larger sample.

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## **Sensational arts pedagogy: Negotiating, navigating spaces and places for socially engaged collaborative learning within 21st century teacher education flexible learning environments**

*Janita Crow & Sue Stover*

Auckland University of Technology

This chapter has emerged from the authors' experiences of working together for eight years on 'Music and the Visual Arts': an elective paper offered 3rd year (final year) student teachers studying towards a Bachelor of Education in early childhood education. With Gilles Deleuze in mind (see Mengue, 2008), we have attempted to work differently, somewhat experimentally, with students in the 21st century learning environments that we find ourselves in. Seeing art as an epistemological, ontological way of knowing, and being in/with the world, we have sought ways to open up teacher education to possibilities for engaging with, and through art.

While both authors bring different interests and strengths in art and in music (though neither of us is a practicing/teaching artists as such), we have been intent on creating conditions for innovative and sensational pedagogical change (Springgay, 2011; Springgay & Zaliwska, 2015). Key to this has been working with groups of students in ways that open up possibilities for be(com)ing self-determining, participatory and transformative (i.e. socially, culturally, aesthetically, politically engaged) learners, and teachers. We have done this through providing a course structure that offers opportunities for engaging creatively and meaningfully, within an art(s)-centred pedagogical approach.

This integrated approach enables students working in self-chosen groups to explore how a medium (e.g. paint, clay, light, mosaics) can be used to investigate a significant concept that they themselves identify. This requires the students to negotiate in ways that unify and inspire conceptual and artistic thinking (Min, 2013), something that motivates the group to engage in

inquiry, and research as a consequence. It is the group then that determines the enacted (hands-on) art-making and audience-engagement practices that eventuate, as well as the different sites involved: the people, places, spaces and things that come into play both inside and outside the designated institutional education environments.

The arts as they are represented in both Te Whāriki (the early childhood curriculum, see Ministry of Education, 1996) and in the New Zealand curriculum (Ministry of Education, 2007) are full of competing discourses about art, and relevant pedagogies that warrant continuous recall and critical examination (see Craw & Grey, 2013; Craw & O’Sullivan, in process; Dowden, 2012; Min, 2013; Miller, Nicholas & Lambeth, 2008).

Such competing discourses impact on the availability as well as the nature of art-related experiences of those involved with higher/university teacher education. They also impact on what happens in support of any meaningful engagement with art that might occur outside formal learning spaces, and within the communities and societies we find ourselves in. Discourses impact substantially “on the ways in which students, as subjects, occupy particular positions and construct specific identities” (Miller, et al., 2008, p. 355), often limiting the potential and possibilities of how art, and its relationship to, or with, education might be understood, experienced or enacted, inside or outside the parameters of the immediate educational environment.

Writing as a group of critically reflective new (early education) teacher graduates, Miller et al. (2008) reinforce the idea that students:

... arrive at university with a range and complexity of attitudes, beliefs and abilities that have been shaped by various discursive constructions... [that] include the positioning of arts in society, culture and the curriculum; expectations of students and teachers; and the value placed on arts education by individual educators (p. 355).

## Our context

Sited on the North Shore of Auckland New Zealand, AUT University is relatively young. It was established at the dawn of the new millennium (1 January 2000). For most of the following 15 years, AUT’s School of Education’s largest programme has been the Bachelor of Education (B Ed) Early Childhood Teaching.

While music and art (alongside drama and dance) appear in curriculum papers earlier in the three-year teaching degree, the only intensive art-related paper is offered in third year as a Level 7, 15 point, one semester optional paper. As a Level 7 paper, it demands students’ engage critically with the arts (i.e. framed within music and visual art) in both theory and in practice.

Students arrive with a diversity of backgrounds and aptitudes. Some have brought professional training as musicians. Others have had income from making and selling their artwork. Often students have little background in the arts beyond what they have been introduced to, and experienced in earlier papers within their degree. The students also arrive with strongly evident desire to ‘do stuff’.

Tensions exist as a result of these diverse backgrounds, aptitudes and experiences between (1) looking at the arts from a distance – e.g. the politics of art curriculum; marginalisation of the arts in society, and (2) engaging with the creative and material aspects on a subjective and

intersubjective level; that is, ‘doing stuff’: working as individuals and in groups to make music and to create/make objects of art, art works.

Other tensions also have become evident. The ‘doing stuff’ emphasis also stands in tension with the practical and pedagogical aspects of early childhood classrooms. How much are we demanding that student teachers learn the techniques of teaching the arts to children under 5 years old; how much are we encouraging students to consider in depth their own art-full lives? Many authors advocate that if they are to successfully engage young children in rich and meaningful art-ful dialogues, those who teach art need an ability to articulate a knowledge and perception of and about art, together with the ability to enable children access to experiences in, through and with art relevant to the communities, and or the global contexts that surround them (see Unrath & Luehrman, 2009; Dean & Brown, 2008; Vecchi, 2010; Craw, 2011).

When the paper ‘Music and the Visual Arts’ was first taught in 2001, there was a strong emphasis on the politics of art curriculum. As different lecturers have become involved, the paper and its assignments have morphed. With a background in community music and adult/parent education, Sue Stover took responsibility for the paper from 2003 and introduced an assignment requiring students to work in groups to present a seminar or a hands-on workshops for classmates on a chosen aspect of music and the visual arts. Each group had to also produce a ‘handout’ for the class. The group process was not documented within in the assessment process.

In 2007, when Janita Craw joined AUT she brought a background in art-centred inquiry and research). When she began team teaching with Sue Stover on this paper, the seminars continued but significantly changed emphasis and become an opportunity for the group to report on an arts project: an aesthetic inquiry (Morton, 1983) that integrates a ‘making’ project undertaken by a group. In the early stages of the project, each group needs to identify a concept and medium. An early task is for the group of students to identify what New Zealand artists are working ‘out there’ in the areas where the students are positioning their projects. Thus they are asked to ground the project within existing contemporary arts communities.

Alongside this, the documentation required now has an emphasis on the pedagogical. Students are asked to document how this experience of engaging with art and working collaboratively on an arts-centred project brought about learning, and/or teaching. In practical terms, this was most likely to be recognised during points of disagreement and in the reconsideration of the project (few projects progress exactly as planned); or in recognising ‘aha!’ moments when students individually or collectively had an insight (usually a connection between theory and practice).

For many years, Music and the Visual Arts met in generic prefabricated classrooms which are a permanent feature of the AUT North Shore campus. However, from 2011, a long awaited ‘education block’ opened its doors. There was some anticipation that this new teaching and learning environment would cater specifically to, and for teacher education, and within that, offer a designated art studio-like space. However, it quickly became apparent that these new spaces were designed in and around the pedagogically open and flexible and relatively neutralised 21<sup>st</sup> learning and teaching spaces (see Figure 1). Such spaces are intended, as Osborne (2013) notes, to “effectively promote and support a range of pedagogies including delivering, applying, creating, communicating and decision-making” (p. 4), in a university

teacher education environment. Thus such spaces are usually expected to be used by all (and sundry) via the University's centralised room-booking services, ensuring all rooms are fully (and economically) utilized (Craw & O'Sullivan, in process).



*Figure 1.* Partial views of lecture room (left) & student resource space/classroom thoroughfare (right) (photograph: S. Stover, 2015)

It is in these open and flexible pedagogical environments that students engaging on this paper are offered opportunities to engage in 'hands-on' experiences that pertain to art and/or music, however these operate within the considerable constraints that any such environment determine. Students are, therefore, encouraged to determine the variety of spaces and places where they might engage with art, outside in the communities they inhabit. This approach is not without some support. Blackmore, Bateman, Loughlin, O'Mara and Aranda (2011, p. 22), suggest that contemporary pedagogical practices (of inquiry) that work with "the city as a classroom" foster collaborative learning experiences and bring about a deeper sense of learning engagement. This positions education as a public activity.

### Working in groups

As lecturers, we regularly find that the self-chosen groups reflect existing social student teacher networks with students tending to gravitate towards whoever they've worked with on past assignments, or to whoever is sitting nearby when the deadline looms for settling group membership. We've noticed that international students and recent migrants are likely to be in the same groups. This is similar to patterns identified by Strauss and U (2006) who pointed out that when the focus is on the successful completion of degree, that students often prefer to work "easily and pleasantly in a group of people who share their language and cultural values" (p. 3).

While recognising there are problems inherent in self-chosen groups with high stakes assessments, we have not sought to intervene to change it. This is in part because of self-protection on our part (it would require us to step into the uncomfortable position of feeling responsible for any interpersonal problems that might arise), but also because the interactions between the students often involve creative tensions and insights. Some of the most interesting projects have evolved from the groups of international and recent migrants. For example, one group in 2012 started off wanting to make masks to enact a Maori myth, began to explore the

mythological creature – the Taniwha. This led them to refocus their project on ‘Monsters’. Each member made a papier maché monster relevant to their own culture (for example, the tokolosh of Southern Africa; and the tiyanak of the Phillipines). In some cases, these mythical beings were acknowledged as still relevant to the lived experiences of the students concerned. In 2014, two recent immigrants from southern Asia set themselves the task of painting self-portraits which included considerable consideration of how to paint skin colours.

We also noted that leaders emerge within every group in order to achieve the tasks at hand. Some students who rarely speak or show leadership qualities in normal classroom interactions stand out within self-chosen groups. While we will never know whether our assumptions are correct, we have assumed that if we spread out the known leaders amongst the various groups, those leaders would maintain their usual role and out of habit, and perhaps in the hope of good grades, would dominate the groups.

Interestingly, we have also seen how a group of high achieving students can come ‘unstuck’. We have watched with some distress as groups of higher achieving students found friendships dissolving as they attempted to navigate the challenges of this particular open-ended group assignment. In speaking with those students, they talked about the pressure of high expectations alongside too many assignments, and the pain of broken promises.

While the emphasis is on the making, the social context of a group with shared responsibility has been highlighted as a major learning. Emphasising the power that art-inspired practices offer, Miller et al. (2008) state that art provides:

...multiple entry points for pre-service teachers to engage in critically reflective practice. Learning in and through the arts provides many opportunities for students to explore personal and professional theories and identities as well as artistic ways of communication, and learning about skills, technique and aesthetics (p. 362).

One 2013 articulate student itemised key aspects of project management evident in her group’s outstanding photographic project:

*Plan: Although it is very important to plan, often time, materials, money location and opinions can change.... This can be a good thing as it can make the end result better than you planned. It just needs to be monitored....It is important to keep trying different thing if you are not quite happy with the current result. Often a better result will occur if you keep at it.*

*Support: It is very helpful to seek help and knowledge from others. It can give you a new perspective that you may not have considered. It can be a boost to know that you are not the only person who thinks it is ok.*

*Come back to it: We experienced that some days your mind can reach its limit and no matter how hard you try, it may not be able to perform at its best. Sometimes it is good to re-visit a problem at another time when your mind is fresh and clear.*

*Perspective: Art is interpreted by each person differently. Something one person may like may be horrible in the eyes of someone else. We learned to take ownership for our art, no matter what other people think.*

*Communication: We learned that communicating to each other each step of the way is essential to ensure everyone is on the same page... This way we all remain working towards one goal. We also learned how everyone preferred to communicate (e.g.*

*texting, email etc) and ensure that we made it easy for each person to keep in touch.*

*Capability or drive? We also learned that although you definitely need to have some natural ability to grasp and complete pieces of art, if you try hard and really immerse yourself into a project, you can in fact create a form of art.*

*Emotional connection: We also discovered how art can really impact on your emotional state. We found that just looking at some art can cause extreme feelings (like discomfort or disgust). It can really tap into your views and beliefs of the world.*

The pedagogical documentation is submitted using a diversity of media. We have received facebook correspondence and YouTube clips, as well as more traditional forms of documentation such as minutes of meetings, journals, sketches and photos of places explored, as well as art work in progress.

### Changing spaces for art

All learning is emplaced. It happens somewhere and it involves materials. It is located and situated... Many factors impact on how space is appropriated and presented to [others] and how space is interpreted... and reappropriated by [others] for purposes of interaction... and performance (Donoghue, 2007, p. 62, 70).

Teacher education inevitably changes over time. Many arts-focused teacher educators work in environments that provide designated spaces for art making (as well as other disciplines; for example, designated spaces for technology, language-literacy, dance, music). These environments offer students opportunities to “identify and work as artists” and/or engage in “studio experience for experimentation with a range of media” (Miller et.al., 2008, p. 357). (As an example, see Figure 2.)



Figure 2: Partial views: Traditional teacher education designated art room, School of Education, Monash University, Australia (photograph: J. Craw, 2012)

However, much ‘talk’ about 21<sup>st</sup> century flexible learning environments promote environments that are responsive and able to be utilised by different cohorts of students, studying in a variety of different disciplinary areas. (Whether such environments are responsive to, or the drivers of, more innovative pedagogical frameworks that go beyond dominant social-constructivist approaches is another discussion that extends the parameters of this chapter.)

However, teacher educators are expected to have an articulate and consistent pedagogical understanding that they then enact in their practices. It is an expectation that they articulate the contexts and practices needed for learning to happen, together with the ethical rationale or purpose for the particular learning deemed desirable (Pringle & DeWitt, 2014). Group work or team-based learning has long been recognised as an approach that acknowledges and utilises students' existing socio-cultural competencies (Howland, 2010), thus greatly improving opportunities for more complex engagement. Art practices can effectively, in a supportive environment, "function as a hub of social relationships that encourages [those involved] to construct an appropriate learning community" (Min, 2013, p. 45); one that is able to work together towards common educational, and/or societal goals.

Consistent with research that examines ways of documenting and assessing learning that occurs in 'informal learning' environments (e.g. museums, galleries, zoos), the valued learning outcomes that emerge are not predictable at the onset, nor are they necessarily identified as aims at the beginning of the projects (Lemke, Lecusay, Cole, & Michalchik, 2012). In our experience, such informal spaces have featured in the documentation of where the students journeyed in their project; hardware stores, beaches, city parks feature alongside the galleries and museums.

Peppler (2013) suggests interest-driven art learning that occurs outside of formal educational institutions differ in three crucial ways:

- It is inherently interdisciplinary.
- Individuals are motivated by pride in their work and curiosity about the medium or concept involved.
- New technologies transform collaborative opportunities to share and publish artwork.

## Discussion and conclusion

While Beck and Kosnick (2006) identified social constructivism as an innovative theoretical framework for thinking about learning theory, others have puzzled over paradigm shifts that go beyond constructivism, and its preoccupation with knowledge production. Rather than holding tight to constructivism, Brown (2005) suggests that we engage with an alternative 21<sup>st</sup> century learning paradigm: 'navigationism' which is responsive to the complex digital worlds we live in. It also is indicative of how we might work differently with students in ways that coach or mentor students as they navigate their way through an "ocean of available information and knowledge" (p. 10). This involves creating spaces that enable students to engage in finding, identifying, manipulating, and evaluating information and knowledge. It also involves integrating this knowledge (and these experiences) into worlds of work-life, and, for example, making meaning out of problems and communicating these knowledge/s (including art world knowledge/s) to others.

Many social constructivists interested in knowledge formation focus specifically on the role that 'learning communities' play, and the impact they have inside educational institutions. As Fraser, et al. (2013) articulate, social constructivism emphasises knowledge as constructed in collaborative learning environments: "learning is socially mediated with peers, teachers and others, within and beyond... Curriculum integration, negotiating the curriculum and inquiry

learning provide mechanisms by which socially constructed learning is both acknowledged and enhanced” (p. 8).

Others who work in teacher education are more concerned with ‘the beyond’: the effects of the larger society, indeed the (material) world itself, taking what Felix Guattari refers to as an ethico-aesthetical approach that recognises the (dis-) connected social, cultural, physical world that we live in (see Olsson, 2009). Here the potential for complex learning occurs beyond the boundaries of traditional educational environments open up other spaces and places whereby the potential for complex art-centred (inspired, integrated) learning that occurs in other (often referred to as ‘informal’) pedagogical environments. It is here that student teachers experience encounters with people, places and things have the potential to contribute significantly to a much valued art-ful and aesthetic knowledge production. They can experience ‘sensationally’ as adult learners what they as teachers offer to very young children

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## Capturing teacher practices in a complex learning environment

*Narelle English & Yasotha V*

University of Minho

In Australian schools, high capacity students appear to be progressing at slower rates than their peers. Recent research has identified that there is a ‘flat line’ in the achievement of high ability students, while their lower ability peers are making more rapid gains (Care, Griffin, Zhang & Hutchinson, 2014). Despite being in the same classroom with the same teacher as students who are showing growth, top quartile students are not achieving the same rate of growth. This phenomenon has remained consistent over several years. The findings are consistent with Australian students’ results from the National Assessment Program – Literacy and Numeracy (NAPLAN) (ACARA, 2013), the Program for International Student Assessment (PISA) (Thomson, De Bortoli, Nicholas, Hillman & Buckley, 2011) and the Progress in International Reading Literacy Survey (PIRLS) (ACER, 2013). There is evidence (e.g., Hanushek, Peterson, & Woessmann, 2012) that drilling more deeply into whole-class gain-levels in student achievement reveals rapid gains of students in the lower ability range (Bensley & Murtagh, 2012) while higher ability students (defined as students in the uppermost quartile, Q1, of ability) fail to develop commensurate with their potential (Shin, Davison, Long, Chan & Heistad, 2013). These data show that there may be a problem in the Australian education system in realising the learning potential of each and every student. In order to determine the conditions under which teachers can support the growth of every student in their classroom, research is being undertaken to determine what strategies are most effective for promoting the growth of higher ability students. This needs to be done while ensuring that the growth of students who are making gains continues its current trend.

The Assessment Research Centre at the University of Melbourne is currently undertaking a research project titled ‘Realising Australia’s Potential’ (REAP). This project is being conducted in partnership with the Victorian Department of Education and Training (DET). The first

phase of the project involved the exploration of teaching strategies that facilitate growth for all students. The aim of this stage of the project is to analyse differences and similarities in teaching practice between classrooms and the impact these may have on the student learning experience in order to identify the strategies that are related to growth for all quartiles of students and that can mitigate the flat line results for students in the uppermost quartile.

The program of research described in this chapter discusses the process of identifying and investigating instructional practices demonstrated by teachers whose classes achieved growth for all students. The complexities of capturing practice are discussed with reference to current observational frameworks and their limitations. The chapter discusses the development of an exploratory observational tool to suit the purpose at this stage of the project. Findings from piloting the tool in classrooms and reviewing useability will be shared.

## Background

The first stage of the study is focused on investigating practices of teachers whose students, irrespective of ability levels, have achieved significant gains. This stage responds to a hypothesis that variation in the use of teaching strategies across groups of students impacts on the differences in achievement outcomes. Can the growth for all quartiles for these teachers be attributed to commonly recognised aspects of expert teaching? Or are these teachers doing something unique in their classrooms which results in growth for students in all quartiles?

### *Classroom observations*

Classroom observation has been identified as fundamental to classroom research (Martin, et al., 2010) but there are numerous approaches to the exploration and identification of classroom behaviour. These include teacher questionnaires and self-reports, student reports and interviews. Observational methods are considered to have an advantage over self-report measures because they provide a real-time measure of behaviour. It has been suggested that most of the opportunities for improving teacher practice can be identified through classroom observations (Whitehurst, Chingos & Lindquist, 2015). Classroom observations provide us with the opportunity to observe, document and learn how teachers are supporting students of different abilities in their lessons. Using this approach is appropriate for this stage of the study as it enables the exploration of a variety of factors that may be influencing outcomes (Creswell, 2008).

### *Complexity of capturing information*

The goal of an observation system is to identify and capture specific elements within the classroom experience that can be related to student learning (Harris & Cox, 2003). However, teaching and learning in a classroom is a dynamic experience. In a typical lesson, several different things are happening simultaneously and many different participants are involved. In addition, classroom events sometimes unfold quickly, so taking note of multiple events in real time is challenging (Richards & Farrell, 2005). Capturing and classifying difficult to define teacher behaviours in order to articulate them was a major consideration for our observations. Making decisions on what is worth observing and on how much to capture can be challenging,

so identifying and/or developing an appropriate observation tool to capture instructional practices can be a significant hurdle to overcome.

### *Review of existing frameworks and observational tools*

A review of existing frameworks identified a number of observation tools for capturing teacher practices in the classroom. Many provided representations of good or expert teaching described as behaviours and placed within a framework. However, all required the observer to make a judgement during the observation by rating the teacher practices or behaviours against a set of standards, and this may restrict the raw data capture that is essential to exploratory observations. For example, the Danielson framework (2011) was developed to capture teacher effectiveness. It clusters teaching responsibilities into four domains – Planning and Preparation, Classroom Environment, Instruction, and Professional Responsibilities. Each domain is split into described key elements of teaching practice to provide a roadmap for improvement (Danielson, 2011). The accompanying tools for collecting data in the classroom are comprehensive and capture a range of information by rating teachers against a set of indicators. However, the tool is primarily used to evaluate teacher practices and does not match the exploratory purpose of the observations for this study. The tool also requires extensive on-site training for observers to ensure that they are equally adept at gathering valid and reliable data.

Another example is Creemer and Kyriakides' (2006) Dynamic Model. This model has been validated as a means of connecting teachers' behaviours with student outcomes (Kyriakides & Creemers, 2008). What stands out about this model is its incorporation of differentiation in teacher practices, a phenomenon that needs to be closely examined in this study. However, a review of its classroom data collection tools reveal a complex multi-faceted approach to capturing information. There are eight factors (orientation, structuring, questioning, teaching modelling, application, the classroom as a learning environment, management of time and assessment) measured by five dimensions (frequency, focus, stage, quality, and differentiation). Teachers are placed on a developmental continuum when assessed using observational tools developed by the designers. This model also requires extensive training in the use of its observational tools to capture all the factors and dimensions. Again, it does not match the exploratory nature of the observations for this study.

For the exploratory phase of the study, the goal was to gather comprehensive information about teaching practices rather than evaluate teachers. The tools reviewed appeared to limit the achievement of this goal and could result in the exclusion of possible unique behaviours of teachers when they support students with a range of abilities. The structure, frequency, and quality of the classroom observation component are also important. An observation tool of this type needs to make meaningful distinctions among teachers (Whitehurst et. al, 2015).

In summary, the aim of this stage of the study was two-fold: to develop an observational tool specifically designed for the exploratory nature of the study; and to determine the capacity of the tool to capture data.

## Method

### *Development of observation tool*

#### 1. Identification of teacher behaviours

Fourteen primary school teachers whose classes in a previous study made significant gains across all ability levels in literacy and numeracy were invited to a focus group discussion. They were asked to share typical lesson practices and identify those that they considered to be uniquely effective for students in the highest and lowest quartiles. Based on this process, and an extensive review of literature on effective teaching for high ability students, emerging themes were identified and organised:

- Pedagogical Strategies
- Classroom Management
- Assessment
- Classroom Climate

Teaching practices were identified and coded as indicators for the lesson observational tool and organised within the themes.

### *Observational grid*

There are a variety of methods used to code observed classroom behaviours, including rating scales, checklists and/or time-sampling techniques. Checklists have been found to overestimate moderately occurring behaviours while underestimating infrequent behaviours (Stipek & Byler, 2004). When doing exploratory work, where infrequent behaviours or situations are being studied, continuous time-sampling is a preferable measure as it provides a more comprehensive account with the generation of more information in a shorter time frame (Martin et al., 2010). Therefore, for the purposes of this study, a simple continuous time-sampling coding measure was deemed to be more useful to provide a comprehensive picture of classroom behaviours.

The observational tool was drafted to include timed intervals and codes to capture teacher behaviour (related to the identified indicators) while including space for gathering of field notes as supporting evidence. Facility for some student behaviours to be identified and coded was included in the observation tool, as it was recognised that these provided context for related observed teaching strategies.

#### 2. Grouping

During the focus group discussions and subsequent review of literature (Hattie, 2012), student grouping was identified as a key organisational and pedagogical strategy employed by teachers to support students operating at different ability levels. Therefore, to ensure that information about grouping was captured, grouping methods and teacher behaviour in relation to individual groups were included in the observation tool.

#### 3. Piloting

Following the focus group discussions, the researchers conducted classroom observations of the focus group teachers. The goal was to verify information generated by focus group discussions but also identify any unique practices of the teachers that might contribute to learning growth for all students. To do this it was necessary to identify teaching practices and link them with the focus group findings.

The observation tool was piloted by 10 researchers with eight teachers. Six researchers had a background in teaching while the others were trainee Educational Psychologists. All had prior experience in conducting lesson observations and recoding teacher / student behaviours. Observers attended a two-hour session to learn about the tool, its items and the data collection process.

Two observers attended each lesson and used the observation tool. This was to support the exploratory nature of the study (i.e. capture as much as possible) while at the same time, providing information for later inter-rater reliability discussions. Two lesson observations, with two observers for each lesson, were conducted for each teacher. Teachers provided lesson planning documents and task / resource information for the lessons to be observed. Brief post-lesson interviews were conducted with the respective teachers after their lesson to clarify teaching practices or observations. All documents (i.e. planning documents, task information, completed observation grid and notes by observers) were submitted to one researcher who coded and analysed the observations including reviewing inter-rater reliability. After the observations, observers were invited to share their reflections on the likely utility of the observation tool for the next phase of the project.

## Findings

### *Identified range of practices*

Data analysis of the observations indicated that, as intended, the observation instrument did capture some similarities and differences in how teachers supported and engaged with students of all abilities in their classrooms. The themes that emerged from the focus group discussions were observed during the lessons. The descriptions provided by teachers when describing their practices were verified during the observations.

The observations also identified a range of practices, as opposed to a single salient practice, across teachers that could have contributed to growth for students of all quartiles. Although the focus group teachers agreed on a set of basic principles that they believed contributed to student growth in their classrooms, evidence from observations showed that they differed in the strategies they used to enact these principles in lessons. For example, 'differentiated instruction' underpinned many of the practices described by teachers, but this was not a prescribed set of practices. Rather, it appeared to be a core belief that, in the provision of learning opportunities, teachers should cater to the individual needs of students in their classrooms (cf. Tomlinson, 2000).

Interestingly, all the teachers were also equally convinced of the effectiveness of the practices they adopted and the impact of their chosen practice on their students. This presented a unique research problem but not a unique phenomenon within research literature. Literature supporting different, even incompatible, strategies is common, and Hattie's (2012) work on visible learning has revealed that almost any intervention can have an impact on student learning. A well-documented example of disputed practice is the ongoing argument between whole language and phonemic approaches to reading acquisition. If almost any intervention has an impact on student learning then the question that emerges for the researchers is this: what practices, or combination of practices, will contribute to the most growth for all students, including those in the highest quartile?

### *Interconnectedness of strategies*

The observation tool did not have the capacity to identify the interconnectedness of emerging themes, although evidence from the focus group discussions indicated that these cannot be studied in isolation. Teacher practice in one factor appeared to influence the decisions a teacher made regarding other practices. For example, focus group teachers who used ability groupings in their classrooms shared the need to establish a safe learning environment before implementing this strategy. Teachers reported that a safe learning environment encourages students to work with other students. The decision to group students by ability was also influenced by teachers' use of assessment data. Factors to which teachers attribute growth are interrelated to such a degree that they cannot be examined without consideration of this fact.

It was difficult to capture, effectively and accurately through the classroom observations, the alignment of various aspects of the emerging themes. Cohen (1987) describes instructional alignment as the 'extent to which stimulus conditions match instructional components: intended outcomes, instructional processes, and instructional assessment'. The focus group teachers' classrooms demonstrated a strong instructional alignment in the form of established routines that were explicit about the learning intentions and a classroom climate that created the opportunity for students to engage with challenge in their learning. Teachers reported that it was important to create an environment that allowed students the opportunity to learn, although this could not be easily captured through the observation tool.

### *Inter-rater reliability*

Lastly, analysis of the observation notes across both observers for each lesson identified inter-rater reliability issues with the data collection. Observers were able to document teacher behaviours reliably at five-minute time intervals, grouping strategies for students, as well as task-related student behaviours. There were significant similarities between observers when coding. However, during the post-observation review sessions, observers without direct pedagogical experience indicated challenges coding some pedagogy-specific teacher behaviours. For example, the coding of teaching strategies presented reliability issues when observers attempted to distinguish modelling, explaining and presenting. In addition, analysis of the observation notes reflected that some observers had integrated interpretation of their observations in the coding of teacher behaviours. In light of these limitations, the observation tool will be refined for use in later stages of the project.

### *Future directions*

Despite the challenges experienced in identifying the unique practices of the focus group teachers, the classroom observation tool provided the capacity to explore the themes identified in the focus groups as exemplified in the classroom. The observations also enabled the identification of overarching categories for teaching practices (e.g. use of assessment, development of learning intentions, grouping, tasks allocation and scaffolding) that might have an impact on the opportunity to learn for students of all abilities, including the top quartile.

The next stage of this research project will include the finalisation of the observation tool in a form that enables objective collection and coding of data. (Use of the finalised tool will provide

a database against which to identify patterns in the relationship between classroom practices and student achievement results in the final stage of the project.) The classroom observation tool will be refined to support the capture of emerging themes and categories more thoroughly. In addition, there will be opportunities for inter-rater reliability to be established in the use of the tool prior. Triangulation of information through other means, (e.g. document analysis of planning documents and tasks, post-lesson interviews with teachers) will provide a more comprehensive understanding of the interconnectness and instructional alignment of teaching practices.

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## Collaborative assessment as a pedagogical tool in science teacher education

*Dawn Garbett*

The University of Auckland

I teach a science education methods course to a cohort of 80-120 student teachers in a one-year Graduate Diploma of Teaching (Yr 1-8, Primary Specialisation) programme. As the course coordinator, I was aware of a number of issues. These included that the course aimed to teach science content and effective pedagogical practices to student teachers in just 24 hours of face-to-face contact time. They enrolled in the programme with limited background knowledge in science and were assessed through a microteaching experience in prescribed topic. High rates of student absenteeism in the latter third of the course when no penalties could be imposed for non-attendance were also a concern for lecturers.

Added to these issues, our student teachers rarely saw science taught effectively (if at all) when they were on their placements in primary schools. Because of the crowded primary curriculum, science is an area which teachers are often reluctant to teach or one which is taught ineffectively. For example, only a third of the primary schools reviewed by the Education Review Office (2012) were found to have effective practice in science teaching and learning. In Australia, a large gap between ideal and observed practice in primary science education has been noted by science educators such as Goodrum and Rennie (2007) and Tytler (2007). A common theme in this and other research (for example; Appleton, 2006; Bleicher, 2007; Traianou, 2006; Tretter, Brown, Bush, Saderholm & Holmes, 2013) was that that sound content knowledge was important if teachers are to teach science well.

Implementing a collaboratively assessed science content and pedagogy test was an intervention to increase student teachers' engagement in a breadth of science knowledge and to foster their confidence and competence to teach the subject in primary classrooms. The intervention was based on the dual premises that content knowledge is necessary for teachers to teach (Ball, Thames & Phelps, 2008) and pedagogical knowledge is necessary for them to understand the relationship between teaching and learning. It was used to attest to whether

course learning outcomes had been met (e.g. demonstrate understanding of science subject knowledge and pedagogy to create a supportive learning environment); graduating teaching standards attained (e.g. draw upon content knowledge and pedagogical content knowledge when planning, teaching and evaluating, (Teachers Council, n.d.)); and to evaluate and compare students' learning to benchmarked grades. The test signalled to students the importance of certain information, processes and/or practices over others in order to graduate as qualified teachers. The dominating discourse was that assignments are primarily measurement and accountability tools (Vardi, 2012).

I was keen to cast the collaboratively assessed science content and pedagogy test as a pedagogical tool rather than an auditing instrument. My intention was to extend the student teachers' motivation beyond the typical quest for an A grade (or a C pass) in the science education course. I also wanted to foster their confidence and competence to teach science in primary classrooms – a curriculum area which is seldom taught effectively in New Zealand primary schools (Ministry of Education, 2010). It could be argued that prescribing a high stakes test was counter intuitive to fostering confidence, given that many student teachers are adverse to the subject. For many with limited background knowledge in science and/or with previous experience in failing science, a mastery test could have reinforced their perception of themselves as incompetent and unwittingly, discouraged motivation for learning. Harlen and Deakin Crick (2003) found evidence that high-stake tests do not motivate the unmotivated and tend to lead to shallow rather than deep learning. However, I believed that an assessment task could encourage deeper learning if students appreciated its authenticity and engaged in understanding rather than learning by rote memorisation. An authentic task needed to reflect the ways in which knowledge and skills were used by teachers. Therefore, the questions I asked in the test incorporated understanding of basic science concepts and also evaluated student teachers' ability to make the science content accessible to learners through the use of sequenced activities and experiments.

The test comprised of eight questions covering knowledge of common science topics (e.g. astronomy; electricity; plants; the rock cycle) and appropriate activities to teach them. For example the question about astronomy was:

Give clear explanations and one activity you could use in the classroom to illustrate the cause of each of the following a) day and night; b) seasons; c) year; d) phases of the moon.

Set as task for an individual, having to write answers to eight questions under test conditions was little motivation for most student teachers to engage in understanding about science and how to teach science. Achieving a pass in the science test was an extrinsic goal imposed on student teachers for the purposes of becoming certified. There was a degree of intrinsic motivation because student teachers recognised that they would be teaching science in their own classrooms in the following year. However, this was a weak motivator given the status of science in the crowded primary school curriculum and the mandated emphasis on teaching numeracy and literacy (Ministry of Education, 2010). A stronger motivation was to have students identify as a member of a group. This could be a powerful impetus to contribute, providing each individual felt that their efforts were essential for the group's success (Johnson & Johnson, 2003). In designing the test to be a collaboratively assessed task for groups of four

students, I utilised the emotional response of students not wanting to let others down as motivation to do well.

Assessing the test collaboratively was based on theoretical and practical considerations. Research pointed to collaborative testing in higher education (for example, Bloom, 2009; Giuliodori, Lujan, & DiCarlo, 2008; Zimbardo, Butler & Wolfe, 2003) promoting student achievement, student retention and student motivation. Adding a collaborative component to a traditional individual test format encouraged social interdependence (Johnson & Johnson, 2009) and sharing responsibility for the groups' achievement and learning. Practical considerations included creating an authentic opportunity for students to practice teaching one another science concepts and reduced the number of student test responses that the lecturers graded.

## Method

I used an action research (McNiff, 2010) approach to answer the research question – what are the advantages and disadvantages of using a collaboratively assessed science content and pedagogy test to foster student teachers' confidence and competence to teach science? The iterative nature of action research allowed for a systematic representation of the changes to practice that evolved in response to feedback over the course of several years. I planned, acted, observed and reflected more carefully, systematically and rigorously than is my normal practice (Kemmis & McTaggart, 1988). Changes were made to assessment strategies and the responses to, and effects of those changes were gathered, analysed and considered. This led to modifications and the implementation of further changes to the assessment strategies which were in turn analysed and considered.

Student teachers' evaluation of the test was generated through interviews and questionnaires. The end of course questionnaires included Likert-scale items rated strongly agree to strongly disagree and open-ended questions that probed students' responses to the test. An SPSS codebook was written and students' responses to the Likert-scale items were entered. Students' answers to open-ended questions were read and re-read before using the constant comparative method for analyzing the data. I compared comments in the data with previous comments of similar and different attributes until stable, inductively generated categories emerged (Glaser & Strauss, 1999). The frequency of comments in each category was recorded and some responses were highlighted to illustrate the range of comments. Steps such as assuring the student teachers of confidentiality and explaining the broad objectives of the research ensured high participation rates but the validity of student teachers' self-reported perceptions of the effectiveness of the task is not well established.

I kept a detailed record of the moderation procedures that were used when grading the test as well as reflections about practice in my professional journal (Bolton, 2005).

## Implementation

The student teachers were instructed to work collaboratively in self-selected groups of four. Lecturers had agreed to teach four of the test topics in as much depth as was but barely mentioned the other four topics. Within the groups it was expected that each student teacher

would focus on one question that lecturers taught and one other. This was based on the jigsaw strategy (Aronsen, 2000) whereby students work to understand their part of the jigsaw puzzle. They were to take responsibility for their two questions (or parts of the jigsaw) and to provide the other three in their group with ideas, activities and questions that would make learning the topic effective, memorable and successful. The eight questions were included in the student teachers' course booklets.

The motivational lever to learn and support each other within their group, to engender positive interdependence and individual accountability was that I required each student teacher to answer only one question in the final test. Each individual's mark would be added to the others in their group to give a mark out of 40%. On the day of the test, which was the last day of the course, one of four questions was randomly assigned to each student in each group. This meant that a student who had taught his or her group about astronomy might receive the question about electricity to answer. My understanding was that by having a group grade, "every student embraces a responsibility for learning the assigned material and for making sure that all group members of the group learn it, too" (Johnson, Johnson, & Smith, 1998, p. 30). Without the group mark being made up of individual scores, there was little individual accountability.

In the first iteration, student teachers were not specifically directed to teach one another. I expected that they would make time to meet outside of normal session times to prepare for the test and that that would entail teaching one another some of the concepts and trialling some of the activities. During the course, some students complained that members of their group did not turn up to scheduled meetings and others commented that their peers were not teaching the information, but merely passing on study notes. These groups were counselled that working collegially was part of the teaching profession and advised to speak to the student concerned but no other action was taken to intervene.

Absenteeism appeared to be less of an issue than it had been in previous years judging by the number of students in our workshops throughout their course. However, this is only anecdotal since no attendance checks were taken.

After the test at the end of the course students completed a questionnaire. Their written comments to open-ended questions showed that how the different groups had worked together to complete the task varied markedly. Some groups had organised specific meeting times in rooms with white boards to facilitate their teaching of one another. Not surprisingly, these groups reported maximum benefit and were correspondingly positive about the strategy. Some groups had met only once to exchange notes and little or no teaching or explanation had occurred. Other groups had communicated by email and telephone, swapped notes electronically and given little face-to-face support.

Students also rated a number of Likert-scale items related to the science/pedagogy test which was their second assignment (see Table 1). In total, 78 of 83 questionnaires were completed. Working collaboratively had been generally well received. There was considerable resistance to having their final mark dependent on others in the group and testing on only one question; and concern that not everyone had contributed equally. This suggested that student teachers were more concerned with how they would be graded in the new collaborative assessment strategy than the actual process or task.

In the open ended comments, some student teachers complained about how difficult it was to get all the group members together given their busy timetables, external commitments and geographical spread. Student teachers' comments on the pragmatic issues were best summed up by one comment: "In theory it's great but in practice it sucked."

*Table 1.* Student teachers' evaluation of science/pedagogy test, first iteration (n = 78)

Assignment 2 Collaborative content/pedagogy test	Strongly agree or Agree (%)	Neither (%)	Disagree or Strongly disagree (%)
1. It has given me practical ideas to use in the classroom	88	8	4
2. Working collaboratively was a positive aspect.	60	15	25
3. Not all members of the group contributed equally	28	12	60
4. I am not happy to have my mark for this assignment dependent on others in group	32	28	40
5. Working collaboratively encourages a deeper understanding of the task	61	18	21
6. Testing me on only one question was a fair indication of how much science I knew	27	26	47

As a result of analysing the first set of questionnaires and informal comments from student teachers and lecturers, I pondered how I could encourage the students to actually teach one another in order to make this assignment task more authentic. I recognised that the students had competing demands on their time and that their timetables did not allow them to meet easily. With the benefit of hindsight I realised that I had failed to structure the task so that students would work as a group rather than in a group (Chiriac & Granström, 2012).

### *Second iteration*

In the second iteration, lecturers gave each student teacher the opportunity to teach their peers for a short time during the sessions to alleviate the difficulty the students had faced organising meeting times outside of their scheduled time in the science education course.

Comparisons between the first and second cohort of students indicated that the strategy was viewed positively by more student teachers in the second iteration than in the first (see Table 2). The second cohort was much more positive about their individual mark being dependent on the group in the second iteration but I had reworded this question which had introduced an uncontrolled variable. The percentage of student teachers who agreed with the statement that "not all members of the group contributed equally" increased slightly in the second iteration despite time having been made available to students to teach during our sessions.

The thought that their peers were depending on them to perform well in the test had fostered positive interdependence and motivated students but it had increased the stress that some student teachers felt as they prepared for the test. Of the 149 comments only 12 were negative. For example:

*[It] was a complete waste of time. Having to learn 8 questions and assessed on 1 – crazy!*

Table 2. Student teachers' evaluation of science/pedagogy test, second iteration (n = 91)

Assignment 2 Collaborative content/pedagogy test	Strongly agree or Agree (%)	Neither (%)	Disagree or Strongly disagree (%)
1. The assignment has given me practical ideas to use in the classroom	85	4	11
2. Working collaboratively was a positive aspect of this task	70	16	14
3. Not all members of my group contributed equally	29.5	11	59.5
4. I am happy to have my mark dependent on others in my group	63	14	23
5. Assessment tasks motivate my learning	82	na	18

Fifteen student teachers self-selected to participate in informal interviews about the science course after the final evaluation. I noted that collaborating had been effective in motivating them to learn the subject matter.

*Loved the collaboration. It meant less work but they didn't want to let others down, they didn't care about own mark.* (Student interview 2)

*Student didn't feel pressure to pass [but didn't want] to be the weak link so she was still motivated.* (Student interview 3)

*They were freaking out – but they all knew they were capable of doing well.* (Student interview 4)

Several student teachers commented that they enjoyed summative assessment and the pressure to perform. They would have preferred to work individually and saw group participation as a liability rather than an asset. For example, I noted:

*He would have liked 90 minutes and to do all eight questions. Summative assessment with high stakes lifts your game. It's a challenge to achieve a good grade, likes having earned it.* (Student interview 5)

The student teachers' perception that a group grade would be a liability was not borne out by the final results. Only eight out of 94 student teachers scored less than 75%, and 41 students scored more than 97.5%. At the moderation meeting lecturers had discussed how marks would be awarded to those who had scored either considerably more or less than others in their group. We decided to use an individual's first assignment mark to guide our overall decision if they had scored more than two marks below the next lowest in the group.

### Reflection

At the end of the second iteration I considered that the introduction of the test had made explicit the importance of subject content knowledge and had also been useful in giving them practical activities to use in their classroom. Attendance rates were improved. However, the collaborative nature of the assessment strategy, by itself, could be seen as just a ruse to coerce

students to study harder for a test. I reflected on how defensible it was to ask a “good” student teacher to take responsibility for motivating their less committed peers to achieve. I also wondered about the student teachers who were pressured into focusing on passing a test for the sake of their peers when they were more interested in engaging in learning about teaching or, alternatively, when they were aiming for a C pass because they had commitments or other priorities outside of the course with which they were juggling. To reduce the stress students said they felt, I included a statement in the course booklet that lecturers would moderate the final group grade and any student who scored two marks above or below the average of the other group members would receive their individual mark.

The extent to which lecturers felt confident exercising their professional judgement in the moderation meeting was curtailed by the difficulty we had in monitoring what had taken place within the group meetings and peer-teaching. We had little way of accurately assessing individuals’ participation or contribution to the group’s mark. Several students had said that if I wanted them to take peer teaching seriously I should award it some marks. To counter this I introduced another component to the assignment in following iterations.

### Final reflections

I devised a means for students to award between zero and five marks to each other for their teaching and general contributions to the group. They also provided written feedback to one another about what they had learnt through the peer teaching sessions. This meant that the group was now capable of holding its members to account as well as providing constructive feedback to each other.

Monitoring student teachers’ and lecturers’ responses to the various modifications ensured that the collaboratively assessed science content and pedagogy test was a driver for changed pedagogical practices as well as fostering a positive learning environment. Attendance was no longer an issue. Classes remained at full strength until the last session and pass rates were typically 100%. Whether it operated as a carrot or a stick, collaboratively assessing the test increased the pressure for the student teachers to be thoroughly prepared in order to achieve high marks for the sake of the group grade. Having to only mark one question per student meant that each lecturer’s marking load was reduced considerably. Collaborative assessment also worked as a pedagogical tool to leverage students’ deeper learning through the necessity to teach their peers. Not only did having to teach the content reinforce their understanding of that content but the act of teaching their peers problematized teaching for all of us. Peer teaching became integral to the successful pedagogy of the course (see also Garbett & Ovens 2012). Finally, the successful implementation of modifications to the course was a testament to the powerful lens that researching my practice brought to my pedagogy. Spurred on by the student’s comment that in theory it was great, but in practice it sucked, this research enabled me to put into practice theoretically informed pedagogy.

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## Adopting a listening perspective to model relationship-building for teacher candidates

*Andrea Martin & Tom Russell*

Queen's University

Listening to comments made by teacher candidates in end-of-program focus groups has shown us the value of *authorizing students' perspectives* (Cook-Sather, 2002). Studying our teacher education practices from a *listening perspective* has helped us to recognise the importance of developing and validating *pedagogical voice*—both our own voices and those of teacher candidates. Ultimately, the study of our teaching practices has led us to focus on the importance of building *productive and caring professional relationships* with those we teach, not only to make our teaching more effective but also to model relationship-building to future teachers. This chapter develops six principles of successful listening that help us build meaningful and productive relationships.

While the importance of relationship-building and caring is widely recognised, “there is relatively little attention . . . [to] how teachers establish pedagogical relationships with students and how they use these relationships to engage students in learning” (Grossman & McDonald, 2008, p. 188). In this chapter, data from focus groups and our own classes illustrate how several *listening strategies* not only model the building of caring professional relationships but also increase the effectiveness of our teaching. “The first and perhaps most self-evident reason [that teaching-learning interactions in teacher education classrooms are important] is that our preservice teachers are paying attention not only to what we say but to what we do” (Goldstein & Freedman, 2003, p. 462). Accepting that actions speak louder than words, we focus on illustrating the challenges associated with *building new habits and frames for listening and caring*.

## Context of the study

Our teaching occurs in an 8-month, post-degree pre-service program; Andrea teaches courses in special education, Tom teaches science methods, and we are both involved in practicum supervision. In this study we summarise many years of listening to teacher candidates at the end of the program and, more recently, throughout the program. Listening to our students both during and at the conclusion of the program has led us to our focus on listening, voice and relationship-building. We also draw on the literature of teacher education reform and the substantial challenges inherent in reform endeavours (e.g., Darling-Hammond, 2000; Tom, 1997; Wideen, Mayer-Smith, & Moon, 1998).

Cook-Sather's (2002) work on authorizing student perspectives has been fundamental to our research. She described the benefits of listening in these words:

Authorizing student perspectives can directly improve educational practice because when teachers listen to and learn from students, they can begin to see the world from those students' perspectives . . . This is more than simply an interesting experience, it can help teachers make what they teach more accessible to students . . . Furthermore, it can contribute to the conceptualization of teaching, learning, and the ways we study them as more collaborative processes . . . When students are taken seriously and attended to as knowledgeable participants in important conversations, they feel empowered . . . and motivated to participate constructively in their education. (p. 3)

We found this account of the benefits of listening shortly after we began to lead focus groups at the end of our pre-service program. These words inspired us to continue listening and to listen in new and more complex ways.

Sarason (1996, 2004) argued that pre-service teacher education programs must model the conditions of learning that they expect future teachers to create. By listening to our students, we sought to model practices for listening to students, practices that our students might later adopt in classrooms of their own. Listening is an essential feature of relationship-building.

## Objectives

These questions drive our inquiry:

1. How and why has listening inspired us to change our teaching practices?
2. How have we learned to listen differently and more deeply as we analyze years of data?
3. What are the benefits of adopting a listening perspective?
4. What new habits and frames emerge from enacting a listening perspective?

## Method

This study began as an effort to understand what teacher candidates were thinking about and learning from their teacher education program. At the end of each year's program, we recruited small focus groups of primary and secondary candidates and asked open-ended questions intended to generate discussion and to elicit big-picture perceptions of program effects. The questions were as follows:

- If a friend of yours asked you about the teacher education program at Queen's, what would you say were the highlights?
- If you were explaining to someone how you learned to teach this year, what would you include in your account?
- How did you learn to teach?
- What kinds of questions did you formulate during the practicum?
- In the future, what steps will you take to ensure that you continue to grow as a teacher?
- Does anyone have any other comments, thoughts, concerns that we have not addressed?

We now have data that span 15 years. Our research evolved into a study of personal teaching practices when we realised that what we were hearing was generating changes in our practices and in our conceptualizations of our work as teacher educators.

### What we heard when we listened

In addition to focus group interviews, we collected other interview data (including videotaped discussions) with individuals and small groups to better understand how candidates learn from their practicum and program experiences. It is important to note that we did not accept every statement of every teacher candidate as a valid comment on preservice teacher education. Rather, we explored and interpreted both the comments that occur repeatedly and the comments that express a range of opinions as we listened for ways to reframe our own thinking about how to achieve the most productive learning (Sarason, 2004) in our teacher education classrooms. Seven categories emerged from the analysis of our various data sources:

1. Listening for coherence in both courses and program
2. Valuing both rigour and relevance
3. Promoting caring and authenticity
4. Actively supporting risk-taking
5. Modeling productive learning
6. Weaving theory with practice
7. Addressing professional identity and consolidating professional learning

Illustrative data are embedded within the descriptions of seven categories that emerged during data analysis.

#### *Listening for coherence in both courses and program*

Incoherence and inconsistency seem to be recognised more quickly in a teacher education program than in any other context. When a candidate experiences a lecture about the many reasons why teachers should not lecture students, it is virtually inevitable that that moment will be noticed as a moment of incoherence within a course. Many wondered whether there was any collective sense of a big picture for our program.

#### *Valuing both rigour and relevance*

Departing candidates remind us that they are smart people; they are not afraid of meaningful work. “Up the ante” and “give us stuff, not fluff” are among the more memorable

short statements we have heard. Candidates want depth as well as breadth in the exploration of the many challenges facing a beginning teacher. “Purpose” and “relevance” were defining elements of worthwhile assignments in courses where professors demonstrated their “commitment.” Candidates wanted “substance,” yet they told us that they were “touching on so many issues but not really going into any depth or details.”

#### *Promoting caring and authenticity*

While caring and authenticity tend not to be prominent features of the undergraduate education experience in our universities, these values are always seen as significant in the schools we need for our children. Candidates appreciated professors who passionately modeled good practice and engaged them. Professors who did not “genuinely care about what they’re doing and really [don’t] want to prepare you for next year . . . wiped out everything that we learn [about] what a good teacher is and how [to] create a positive learning environment.”

#### *Actively supporting risk-taking*

Listening to teacher candidates over a period of many years has encouraged us to provide early, consistent and active support for taking risks and modeling new and alternative approaches to learning. Professors were valued if they were not about “*the answer*” but instead modeled risk-taking as they “developed the questions with us . . . and sometimes you don’t leave the classroom with an answer, but maybe more questions, and that’s leading you towards finding the answer.”

#### *Modeling productive learning*

Many preservice teacher education programs seem to frequently ask prospective teachers to reflect and become critically reflective practitioners. If those who teach in these programs assume that teacher candidates already know how to reflect, such requests quickly ring hollow. Metacognition (Mezirow, 1991) is a necessary goal in any productive learning context. When elements of reflective practice are taught *explicitly* and modeled by teacher educators, metacognition can be fostered. If metacognition is to improve the quality of learning during practicum experiences, then it must first be introduced, supported and valued in education courses.

#### *Weaving theory with practice*

Candidates look for theory accompanied by specific practical recommendations that are appropriate to current practices in school classrooms. They look for direct assistance in resolving perceived conflicts among recommendations from theory and research, practical advice from associate teachers, and conclusions drawn directly from their personal observations of and interactions with children. They pointedly ask for help in anchoring the skills acquired during their practicum placements: “The closer I get to the end, the less I feel I’ve learned about the fundamentals that I’m going to build my program on, and that’s scary.”

#### *Addressing professional identity and consolidating professional learning*

Professional identity begins to coalesce as a program draws to a close, and a productive program will work to address that identity formation. Central to this is candidates’ changing beliefs about their students and themselves as beginning teachers. Primary candidates found

some experiences to be eye-opening: “We’re dealing with kids that are carrying weapons and kids that will laugh in your face and swear at you, and call you names... I was totally unprepared for it.” Secondary candidates spoke about learning “different priorities” from students who were unlikely to continue beyond secondary school.

Making the learning that occurs in a teacher education program more productive has become a focal point as we listened year after year. We thank Sarason (2004) for forcefully calling our attention to this term: “The history of reform efforts is testimony to the recognition that the bulk of American classrooms are contexts of unproductive learning. . . They failed because they were not clear about what they meant by *productive*, *unproductive*, and *learning*” (pp. 1-2, emphasis in original). Sarason (1996, 2004) has argued that school and university cultures fall short of providing contexts for productive learning and that creating contexts for productive learning requires that conditions of learning change for both students and teachers. Sarason has also argued that pre-service teacher education programs must model the conditions of learning that they expect future teachers to create. The more we listen to teacher candidates, the more we realise how important it is to explore the idea of productive learning.

Over time, as the seven categories became stable, we identified three major themes:

1. The need to situate course work and practicum placements in relation to each other and to the program as a whole.
2. The need to map out the process of learning-to-teach.
3. The need to recognise and develop the big picture of the nature of professional learning.

As these themes emerged from listening to those who were struggling to develop a personal pedagogical voice, we realised that our own pedagogical voices were being reshaped by what we were hearing.

### Changes to our teaching practices

The preceding assertions about some of the challenges of listening and learning lead us to offer five illustrations that indicate the development of our personal teaching practices as a result of listening to preservice teachers. These are offered as specific illustrations of our point that *if one is committed to improving the outcomes of teacher education, then one must first be serious about changing interactions within the teacher education classroom*. Listening both carefully and critically to those we teach is central to our efforts to create more productive contexts for learning to teach. Five examples illustrate:

1. We ask questions from a learning-to-teach perspective, we attend to and change the pace in light of the amount of previous practicum experience, and we avoid the R-word (reflection) until well into the year to avoid assuming that candidates already know how to reflect. We speak openly about reflection only after we have provided exercises that develop skills of reflection (Russell, 2005).
2. We try to be much more explicit about educational purposes and rationales as we work to weave practical experiences into theoretical perspectives. We stress that sharing of practicum experiences must move beyond story-telling to in-depth analysis of problematic elements of practicum experiences. As we explore the “Why?” of

education, in addition to the more obvious “What?” and “How?”, we also try to be explicit about these same aspects of our own work with those we teach.

3. We try to avoid being didactic, and we try to be explicit about why we are trying to avoid being didactic. Here we are working to illustrate ways to move beyond the familiar “what’s the right answer?” pattern of classroom interaction and to do this in ways that are both practical and conceptual. Any teacher or teacher educator attempting to move beyond teaching-as-telling in order to create a context for more productive learning must confront the innate response of all teachers to fall into the default practices that were modeled by their own teachers throughout school and university.
4. We encourage mindful collaboration among teacher candidates by sharing experiences and resources, working to develop the issues fundamental to our courses, and identifying and exploring common dilemmas of practice. Candidates often recognise that their preservice collaborative learning with peers is quite productive, but it is a huge further step for them to create similar opportunities for collaboration within the schools where they begin to teach. Thus it is important for us to develop rationales and strategies for collaboration among learners and to highlight the importance of teachers listening to students and students listening to each other.
5. We try to foster broad program goals within our own courses, in part by reviewing the big picture for evidence of coherence, collaboration, and minimal dissonance. We find ourselves wondering, at times, if we as teacher educators, like our teacher colleagues in schools, can be so busy trying to fit in as much content as possible that we may lose sight of more fundamental issues of teaching and learning, ones that are explicit in Sarason’s (1996, 1998, 2002) concern about creating contexts for productive learning.

The potential for conflicting messages is high in most teacher education programs because they involve an array of courses taught by an array of diverse teacher educators. As we develop our teaching practices, a fundamental goal is to avoid unproductive dissonance. Breault’s (2004) four categories of dissonance are helpful reminders of the many ways in which preservice teacher education programs can drift from their intended goals:

- *Purposive dissonance*: Do the various program elements interact harmoniously?
- *Axiological dissonance*: What is the value of investing so much time and effort in the non-practicum elements of our program?
- *Perceptual dissonance*: Do the students and teacher educators in a program share perceptions of the purpose and value of various activities and assignments?
- *Contextual dissonance*: Does the context in which activities are carried out support or undermine the value and declared purposes of the activities themselves? (p. 851).

While dissonance can be valuable when it is deliberately created to challenge prior beliefs and existing perceptions, dissonance can be destructive when it arises unintentionally and when teacher educators are not only unaware but also do not actively listen for and respond to its effects.

## Building new habits and frames for listening, caring and relationship-building

Listening to those we teach as they complete the program has been an invaluable source of inspiration as we work to reshape our own preservice classrooms into contexts for more productive learning about how to teach. Changing our practices means changing our habits, finding ways to abandon default teaching approaches and then constructing new, deliberate teaching habits guided by new mind frames (Hattie, 2012, pp. 149-170). Habits are difficult to change without the support of new frames for thinking about listening, caring, and building richer relationships with our students.

Our study of the views of teacher candidates completing the program has shown us that the benefits of listening can encourage productive learning in preservice education courses and supervision. Furthermore, it is in the act of listening that one validates voice; we now see that the development of *pedagogical voice* must be an essential element of learning to teach. We find compelling the case for the significance of voice presented by Richert (1992):

Voice is a necessary part of reflective teaching. . . . The process of reflection in which teachers think about their work in order to question its purpose, examine its consequences, and therefore learn about it, involves talking or a conversation of some sort (p. 190).

Richert extends her argument by linking voice to the importance of the development of agency:

Agency... casts voice as the connection between reflection and action. Power is thus linked with agency or intentionality. People who are empowered—teachers in this case—are those who are able to act in accordance with what they know and believe... Preparing teachers to exercise their voices prepares them to act with agency in their own lives. It is with an eye towards empowerment of that magnitude that I believe we must examine our work in teacher education. For it is towards the teacher who lives and works with agency that we will look for leadership and hope in the coming years of school change (p. 197).

We see the development of voice as crucial in the development of agency and empowerment. If we are to develop voice, we must be willing and able to listen. Only by listening well can we develop productive professional relationships with those to whom we listen. Goldstein and Freedman (2003) underscored what we need to do in order to promote caring relationships:

Teacher educators do not need to teach preservice teachers how to care; however, we do need to help them understand the role of caring in teaching and prepare them to teach in ways that draw on the power of caring relationships in teaching and learning... Our findings suggest that the core of caring teacher education lies in the nature of the interactions between the teacher educator and her students (p. 442).

We have formulated four *principles of procedure* (Stenhouse, 1975) that we try to use to guide our practice:

1. Listening is far more effective than telling or questioning if we wish to foster the development of new teachers' perceptions and their ability to learn from experience.
2. Learning to teach requires learning to listen to one's own learning.

3. Learning to teach teachers requires learning to listen to one's own learning as a teacher educator.
4. Teaching and learning to teach are not about "getting it right." They are more about listening to how and why we are teaching as we do and ensuring that we remain vigilant to listening for the full range of effects we are having on those we teach.

We must remember that our own learning has developed slowly over a period of years and will continue to be less than complete. We now challenge each other to make visible the features of schooling that we tend to take for granted but must become aware of if we wish to improve. This is a slow and complex process that is both inspired by and supported by listening actively to those we teach.

This study has shown us the importance of listening, particularly listening for indicators of productive learning. This has focused our attention on the development of our own pedagogical voices as well as the voices of those we teach. Sarason (2004) has argued that efforts to achieve productive learning have failed because they "were not clear about what they meant by *productive*, *unproductive*, and *learning*" (2004, p. 2). The more we watch for evidence of productive learning, the more we also attend to the quality of our relationships with those to whom we listen. Grossman and McDonald (2008) have observed that relationship-building is not a well-developed feature of research on teacher education:

There is relatively little attention in the empirical research literature on how teachers establish pedagogical relationships with students and how they use these relationships to engage students in learning. . . . Any framework of teaching practice should encompass these relational aspects of practice and identify the components of building and maintaining productive relationships with students (p. 188).

Data analysis using a listening perspective has led us to conclude that relationship-building is best encouraged through explicit modeling of listening and caring by teacher educators themselves.

### Principles of successful listening

In conclusion, we offer the following principles that help us both to listen and to model relationship-building:

- Attend to the fact that different venues produce different kinds of participation.
- Provide a small-group environment that fosters professional learning.
- Respect every voice, as well as the right to remain silent.
- Allow candidates to speak freely about their uncertainties during practicum experiences.
- Encourage awareness of one's personal development as a professional.
- Explain faculty perspectives on traditions and constraints in program structure.

Intriguingly, a purposeful strategy of listening has led us to the insight that listening itself is a powerful way forward in the quest for teaching that models caring and relationship-building.

## Acknowledgement

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## Connecting theory and practice in the pre-service teacher classroom

*Brian Mundy*

Victoria University

In 2014 I was awarded a citation by the Australian Federal Government for making an outstanding contribution to student learning. In my case it was for the learning of pre-service teachers (PSTs). During the process of applying for the citation I reflected on my practice as a teacher educator to identify why students responded positively to my teaching. This chapter explores the key factors I identified that built this positive response from PSTs.

The challenges:

A number of important challenges face the university-based teacher of PSTs. A common challenge for teacher educators is to be able to connect theory and practice, to link the experiences of the PST in the school classroom with those of the university setting. A second challenge is to provide quality teaching that models good classroom practices. A third challenge is to build relationships, within the university classroom, particularly within the tight timeframes of university semester length subjects.

The context:

I have worked as a teacher educator on university campuses and at school located or site-based environments, generally teaching second year PSTs units on science, environmental studies and sustainability and making the conditions for learning for the last 5 years.

The response:

I have addressed this challenge through trying to develop a community of learners in my classroom. Building relationships quickly, empowering students to have a voice and having a

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*Author contact:* [brian.mundy@vu.edu.au](mailto:brian.mundy@vu.edu.au)

strong focus on praxis are identified as key to success. This is supported by the sharing of an holistic curriculum planner, an emphasis on vision building and the thinking curriculum along with a strong belief in the importance of modeling practice. This modeling includes enacting quality curriculum design, pedagogy and assessment practices. I have drawn upon my 30 years of secondary school teaching, five years of tertiary teaching and my living educational theories (Mundy, 2013) to connect theory and practice.

I predominantly teach in two units of study that pre service education students undertake whilst also completing placement. The placement context is highly authentic and crucial to the development of teacher capabilities. However, it also has some challenges. As Sim et al. (2010) point out "...one of the major and long standing challenges of pre service teacher education programs has been to strike a balance between the theory and practice of the profession". There can also be a separation of academic activity and in school practice, reducing the benefits of placement experiences, and students can experience feelings of isolation (Goodnough, Osmond, Dibbon, Glassman, & Stevens, 2009). These are challenges that resonate with my experience both as a teacher and mentor of pre service teachers over my long career in school education. In response, over the past few years I have built on my professional teaching experience and passion for curriculum to develop a suite of approaches to supporting student learning in the placement context. These approaches aim to deliver on a set of interdependent principles: modeling effective practice, supporting teacher education students by connecting theory, practice, and personal experience, and creating and sustaining a community of learners as developing professionals. This approach to teaching is supported by recent sector wide studies (e.g. Sim et al., 2010) that emphasise the importance of modeling effective practice and linking professional practice to the student experience as part of a professional conversation. This dialogue is critical for developing reflexivity in the pre service teacher. Indeed reflexivity is a critical process that is developed, emphasized and valued at any opportunity.

The method I have developed models good teaching practice and incorporates elements appropriate to the 21<sup>st</sup> century. It incorporates eight significant elements: relationship building, implementing a purpose designed Wiki, sharing my curriculum planner, emphasising a thinking curriculum, unpacking teaching practice, developing a vision, storytelling and empowering students. My method influences, motivates and inspire students to learn by stimulating curiosity and independence in learning; contributing to the development of students' critical thinking and analytical skills; encouraging student engagement through the enthusiasm shown for learning and teaching; inspiring and motivating students through high-level communication, presentation and interpersonal skills; and enabling others to enhance their approaches to learning and teaching.

As stated earlier connecting theory and practice is a common challenge. As a school mentor, I frequently heard my PSTs state, that many of their studies at university were disconnected from the real classroom. I left my school career and took up university teaching in order to develop and implement a curriculum and pedagogy that could more closely link actual practice with the appropriate theory. I have devised a living curriculum educational theory that expresses an holistic, complex and constantly evolving approach, that can be more closely connected to the lives of 21st century students. "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 & McNiff, 2006 p. 2).

My university teaching is a synthesis of relevant theory and practice, told through stories, combining 31 years of teaching with a PhD researched and written through that practice.

Another criticism of universities by PSTs and consequent challenge for teacher educators relates to the quality of the teaching. In particular, PSTs feel that university teaching does not reflect theories of effective teaching. Trying to model quality teaching is at the heart of my practice and consequent reputation. It is a challenge given the restrictions of university teaching with their characteristics of type, place, numbers, environment, consistency, and time frames.

In response to this challenge, I have developed high-level communication, presentation and interpersonal skills that enable PSTs to enhance their approaches to learning and teaching. To address different student cohort needs I place an emphasis on critical thinking and analytical skills, differentiation, reflectivity and envisioning future practice. The strategies and processes I employ are summarised in Figure 1. Student evaluations show that they have enjoyed the units, learnt much and feel more confident and competent about teaching.

## Learning and teaching strategies to suit student cohorts

### *Relationship building*

To encourage student engagement I emphasise relationships from lesson 1 on. In the making the conditions class I run a mind mapping activity as a “get to know” the students’ pedagogy. I unpack the rationale for the activity, explaining how I have used it in the secondary classroom. The activity ends with me sharing my own mind map of who I am, as I also ask them to develop and share their own mind maps. The mind maps produced by the PSTs give me an insight into their backgrounds, their preferred learning styles, their major understandings from the previous years’ studies and the questions they have as they start the unit with me. It allows me to start making important connections to prior learning and who they are.

This activity also highlights my holistic approach to curriculum planning as there are a number of different learning intentions within the activity including; developing a thinking skill, learning how to construct a mind map, visual literacy, communication pitfalls with presentations, and ICT skills. This shows how a single classroom activity can have many values and also how it can be used as a form of diagnostic assessment relating to these skills and concepts. This activity came from my own classroom practice and allows me to model the relationship between theory and practice, in this case between my own personal curriculum theory and my actual classroom practice.

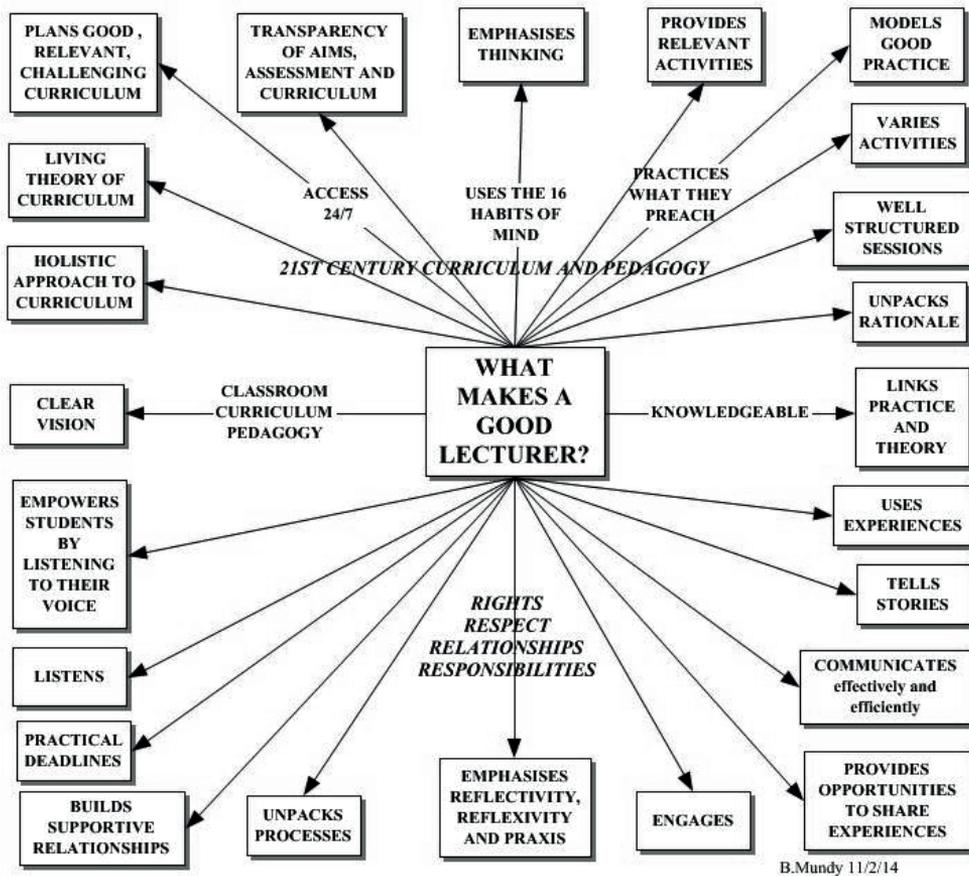


Figure 1. What makes a good lecturer?

To stimulate students into linking key theoretical ideas with practice I highlight and model the 4Rs: Relationships, Respect, Rights and Responsibilities. These 4Rs are based on my many years of experience as a secondary teacher. My understanding and implementation of these 4Rs was initially developed from the work of Bill Rogers on a Positive Behaviour model.

He (Bill Rogers) contends that all disciplinary practices should; empower students to be accountable for their own behavioural choices, respect the rights of others to learn, be safe, and be respected; and build facilitative positive relationships (Lyons et al, 2011, p. 23).

These 4Rs have been and are integral; to my practice, my pedagogy and my classroom management. I discuss them early in the semester and regularly return to them across the units. Modelling and living them in the classroom is an important aspect of my practice and reflects the democratic processes I encourage and model.

*Sharing of my curriculum planner*

We are educating young teachers for 21<sup>st</sup> century teaching, and I believe that the curriculum and pedagogy used by teachers and university lecturers, needs to reflect the characteristics of 21<sup>st</sup> century curriculum design. This thinking was at the heart of my doctoral thesis work. I teach as a member of a team and use the same curriculum, presentations, resources, assessments and unit guide. However, I share with my students my own curriculum planner to emphasise the complex, holistic and living nature of curriculum, the big picture and the more detailed unit outcomes. This curriculum planner is called a learning lattice. A copy of a learning lattice is included at the end of this chapter in Appendix 1. Shown below in Figure 2 is a learning gestalt diagram that shows the key components of the learning lattice. The different elements of the lattice all interact upon one another, hence the concept of gestalt. A teacher often complements their teaching of one area by drawing upon the others or covering that one simultaneously or in the same lesson. Today this is becoming even more important with the increasing number of outcomes that teachers are expected to plan for, teach, assess and report upon. As a secondary teacher there were times when I had to report upon more than 20 separate dimensions of the Victorian VELS (Victorian Essential Learning Standards) curriculum. The top of the diagram lists the graduate professional standards that drive our education curriculum. The other elements of the lattice are drawn from the unit guide and the national curriculum which underpins the primary and lower secondary curriculums across Australia. Specifically I have drawn upon the general capabilities that are an important cross-curricular component of the Australian National Curriculum (n.d).

*The thinking curriculum*

In my teaching and curriculum planning there is a major emphasis on the thinking curriculum. It is my belief that planned curriculum should contain an emphasis or at least an outcome related to thinking. Thinking is now a part of the national curriculum in Australia and part of the formal AusVELS (the Victorian interpretation of the national curriculum) where I teach. Teaching students about metacognition and the thinking dispositions developed by Costa and Kallick (Costa, 2001), the 16 habits of mind are important in each unit. These 16 habits are for me the habits of success. Encouraging PSTs to see the value of the thinking curriculum and also these habits of mind is an important part of my personal pedagogy. Living the habits models their value and usefulness. The thinking curriculum also includes the development of critical thinking and reflective and reflexive thinking in particular. An important goal for the PSTs is to have them become lifelong, reflexive learners. This links strongly with the education faculty focus on praxis. Praxis inquiry is about reflecting upon current dilemmas or topics but then theorising from them and looking forward to changing current practice to improve it. There is a strong reflexivity in praxis with both forward looking and an action focus being critical.

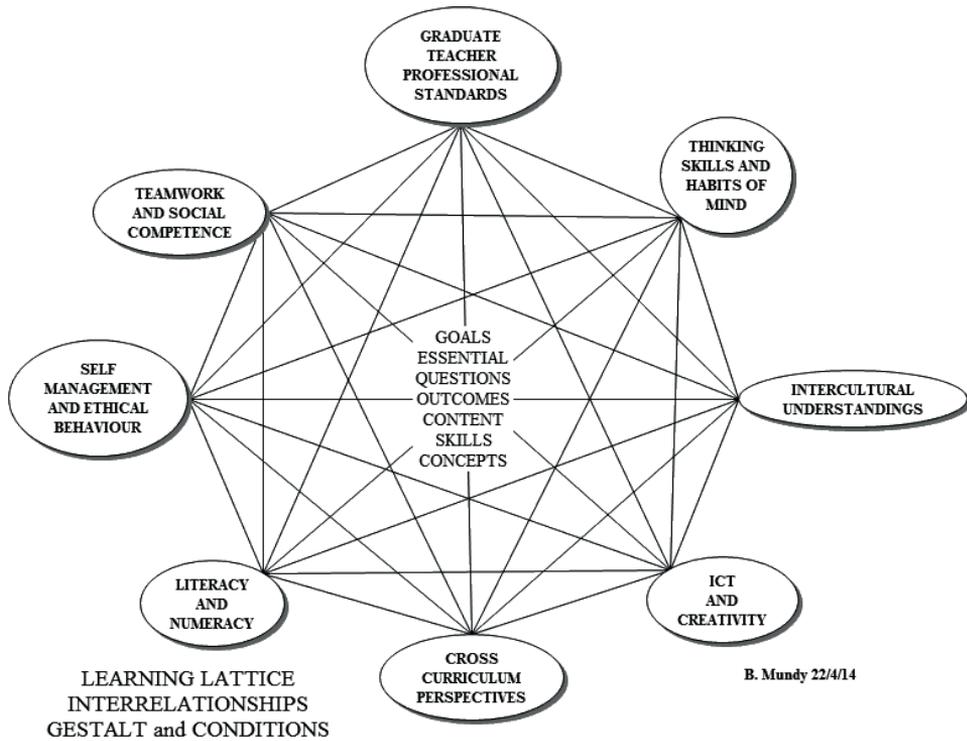


Figure 2. The learning lattice gestalt diagram for the unit making the conditions for learning

*Development of a Wiki*

In the past I have implemented a supportive interactive electronic environment (a Wiki) that supports and motivates the learning of students and addresses their questions and concerns. It is accessible 24/7 and contains resources for all classes in the conditions subject (a separate wiki has operated for the science subject). The wiki contains information on assessment, assignments, readings and links to other resources. It is a platform to encourage discussion, raise issues and share ideas for members of the wiki community. For students based on-site the wiki supports their learning and re-assures them that they have not been missing out on the campus experience. The various wikis developed over time have now been replaced by a university –wide platform which has similar and potentially wider functions including student assessment and feedback.

*Unpacking the curriculum*

It is important in education classes to unpack what the lecturer is doing and the rationale behind it. This process is sometimes referred to as deconstruction of the pedagogy. It is very important, as I am teaching the PSTs how to teach. This unpacking starts with the curriculum, the components its big ideas and/or the essential questions. It continues with the assessment and then embraces the pedagogy. Relating these to school settings and their value for the final student portfolio adds worth. All classes start with either some stated learning intentions, an agenda or a series of essential questions that we will be exploring together. I try to unpack the

rationale between each activity, frequently asking students why I have chosen this activity. At the end of the lecture/class we return to these questions and check for understanding and growth of comprehension. The curriculum planned for each session is put into the context of the unit. An emphasis is placed on appropriate introductions and conclusions to each session.

### *Unpacking assessments*

University assessments are carefully broken down and deconstructed. The rationale behind the success criteria (Glasson, 2008) for each formal assessment and what is required to achieve success are explained. Common misconceptions and potential mistakes are identified. Teachers spend a lot of time assessing students in individual lessons and across their career, and consequently understanding the process and how to assess successfully is very important. Rubrics and criteria sheet are regarded as instructional rather than merely a form of summative assessment. It is important to model all forms of assessment in the sessions. In particular I emphasise assessment for learning and assessment as learning alongside the more traditional assessment of learning (summative) (Black & Wiliam 1998). Unpacking these forms of assessment and the purpose of assessment is vital for PSTs. Unpacking assessment provides value for the PSTs for their own university work but also in terms of the process when they set their own assessments and begin their lifetime of assessing to inform teaching, to identify learning and evaluate understanding.

### *The importance of vision*

Envisioning the future is an essential element of my practice at all levels of my teaching. The visions I encourage my PSTs to develop may be of the curriculum they want to implement, the structure of their physical or emotional classroom environment, it may be what an ideal lesson looks like, sounds like or feels like or the behaviour characteristics of their ideal student or the type of pedagogy they will practice. “Envisioning is a process of imagining, anticipating, or “hunching” the practical knowledge necessitated by curriculum practice” (Hewitt, 2006, p. 74). I stress that it is important to envision the future and to work towards it. In all our praxis inquiry work across the university we are asking PSTs to re-imagine their classrooms to develop improved practice. Visioning is an important aspect of their own developing theories of learning and teaching, their own pedagogies. Looking forward is a critical element of reflexivity for PSTs to practice. “Futures in curriculum are not “out there” waiting for us to arrive. We must visualise them here, now” (Doll & Gough 2002, p. 18).

### *Story-telling*

I am also a story teller as many good teachers are. I use stories in all my classes to help connect understanding and experience, practice and theory. The stories are also an important method of building the relationships with PSTs. The stories allow the PSTs into your own life and to help make connections with you. In science, in lesson one, I show a piece of haematite I found when I was 14. I unpack the importance of the specimen and how it led me to choose a certain pathway in my life. A short-lived career in geology! Stories told illustrate teaching strategies and understandings and are based on real classrooms that the students can hopefully associate and connect to. I invite students to share their own stories and experiences and this again build connections and relationships within the classroom. I ask students to bring to our

classes an artefact relating to their lives, to some aspect of teaching or science. Sometimes this is a book which has had particular impact on their learning and understanding. I regularly illustrate important ideas and practices in sessions with examples from my secondary teaching or observations from primary classrooms. I illustrate issues around safety in the science classrooms or on excursions with examples told through stories. When teaching about differentiation or instructional rubrics I draw on examples from my practice and that of former colleagues. Each of these stories allows me to connect practice and theory with authentic examples that the PSTs are able to relate to.

### *Empowering students*

A final important element of my classroom practice is that of listening to student voice and the empowering of students. My conditions for learning classes begin with the opportunity for the students to share their recent placement experiences, their challenges, issues, and successes. There is also a second opportunity with a call to share experiences and reflections on the weekly theme. Listening to students is an important skill for young teachers to develop and that too needs to be modelled. The input from PSTs determines the length of this discussion phase of the class. Sometimes there are many issues. Other times PSTs may have had a scheduled task such as to have developed profiles of their own students that they wish to discuss. 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 out of class and the discussion takes up the majority of the formal class time.

This reaction to student inputs and student voice can lead to what I have determined to be a 'lived praxis' experience. Students explore a question, provide descriptions of an individual case and then explain what the mentor has done or said. This links other people's theory into the discussion. I then seek a response from the student to articulate their own ideas on the situation. Other students may also give an input at this stage. This is a stage of theorising by the individual PST. I may also give an input, make a suggestion etc. Eventually this may lead to a changed perspective, understanding or new theory. This is the practice re-imagined stage of the praxis inquiry process. All of this happens informally through the discussion. It is what I term a 'lived praxis' approach. 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.

### Final summary

Figure 3 finishes this chapter with a summary of the key elements I have discussed. Connecting theory and practice remains a challenge in the tertiary classroom. Encouraging and positive feedback from PSTs provides evidence that I have helped to successfully bridge this common disconnect. Hopefully I have provided the reader with some ideas to take away and trial in their own settings.

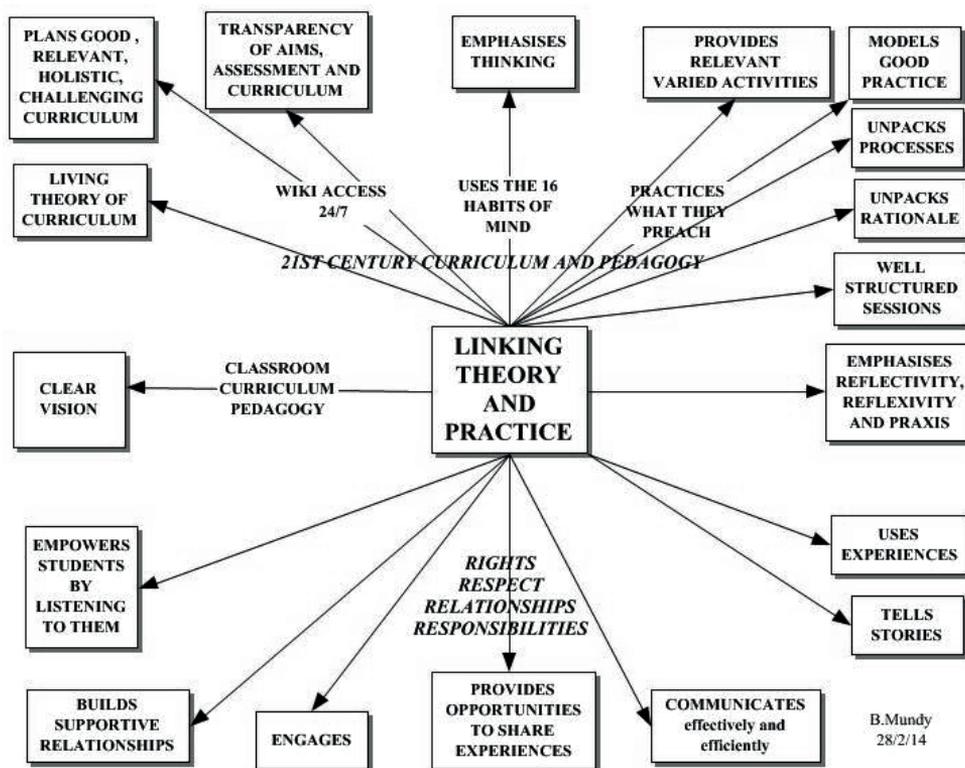


Figure 3. Linking theory and practice – a summary

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Appendix 1. A learning lattice for the making the conditions for learning unit

Learning lattice for "Making the Conditions for Learning"		February 2012
<p><b>Thinking skills</b> : a range of kinds of applied intellectual activities that are involved in using information to achieve outcomes. They include elements such as <b>reflection</b>, solving problems, making decisions, thinking <b>critically</b>, developing an argument and using evidence in support of that argument. Use of the range of multiple intelligences for presentation, process and product. Use of all Bloom/Anderson levels including Remembering, Understanding, Applying, Analysing, Evaluating and Creating.</p>	<p><b>Graduate Teacher Professional Standards:</b></p> <ol style="list-style-type: none"> <li>1. Know how students learn and how to teach them effectively</li> <li>2. Know the content they teach.</li> <li>3. Know their students.</li> <li>4. Plan and assess for effective learning.</li> <li>5. Create and maintain safe and challenging learning environments.</li> <li>6. Use a range of teaching practices and resources to engage students in effective learning.</li> <li>7. Reflect on, evaluate and improve their professional knowledge and practice.</li> <li>8. Are active members of their profession.</li> </ol>	<p><b>Habits of Mind</b></p> <p>Striving for accuracy, <b>Thinking about thinking</b> Gather data using all senses, Questioning and posing problems, Respond with wonder and awe, Persistence, Taking responsible risks Communicating with clarity and precision Thinking and working interdependently <b>Thinking flexibly</b>, Finding humour, Managing impulsivity, Listening with understanding and empathy, Applying past knowledge to new situations, Remain open to continuous learning, Create, imagine, innovate</p>
<p><b>Teamwork</b> enables a student to work effectively and productively with others. It includes working in harmony with others, contributing towards common purposes, defining and accepting individual and group roles and responsibilities, respecting individual and group differences, identifying the strengths of team members, and building social relationships. Working together and communicating clearly the results of group work.</p>	<p><b>UNIT TOPIC</b> <b>GOALS/ESSENTIAL QUESTIONS/OUTCOMES</b></p> <p>Praxis Inquiry is the focal point of teaching and learning both in this unit and the Bachelor of Education program. In second year the focus of Praxis Inquiry moves to:</p> <ul style="list-style-type: none"> <li>• extend your understanding of yourself as a learner;</li> <li>• reflect upon the learning of others; and</li> <li>• develop the skills and understandings required to take a professional stance as a teacher.</li> </ul> <p>It is expected that within the parameters of 'Making the Conditions for Learning' and based on your experiences working in classrooms you will ask questions about the conditions for learning.</p> <p>Pre-service teachers will be able to:</p> <ul style="list-style-type: none"> <li>• identify, interpret and evaluate specific teaching strategies by relating them to specific theories of learning;</li> <li>• trial approaches to the documentation of lesson and curriculum planning and the assessment of student learning; and</li> <li>• demonstrate the use of a wide range of approaches to reflect on and improve personal teaching practice.</li> </ul> <p style="text-align: center;"><b>Assessment</b></p> <p style="text-align: center;">Assessment task 1: 2 praxis inquiries (20%) Assessment Task 2: 10 reflections (30%) Assessment task 3: Evaluation of pedagogies (50%)</p> <p style="text-align: center;"><b>Discipline : content, concepts and skills...</b></p>	
<p><b>Literacy</b> knowledge, skills and understanding need to be used and developed in all learning areas.</p>	<p>ICT skills and understanding are required for all learning areas. Development of ICT competence for information management and the use of ICT skills for creating, visualising thinking, communicating, presenting and sharing information. The ability to evaluate the source, reliability, accuracy and validity of information that abounds in cyberspace.</p>	
<p><b>Numeracy</b> knowledge, skills and understanding need to be used and developed in all learning areas. It is important that this competency is used and developed in all areas.</p>	<p><b>Ethical behaviour</b> involves students understanding and acting in accordance with moral and ethical principles. (Teacher code of conduct) Ethical behaviour includes the willingness, determination and capacity to think, make judgments and behave independently. It includes identifying right and wrong and having the willingness, determination and capacity to argue the case for change; understanding the place of ethics and values in human life; acting with moral and ethical integrity; acting with regard for others; and having a desire and capacity to work for the common good.</p>	
<p><b>Creativity</b> enables the development of new ideas and their application in specific contexts. It includes generating an idea which is new to the individual, seeing existing situations in a new way, identifying alternative explanations, seeing links, and finding new ways to apply ideas to generate a positive outcome. Creativity is closely linked to innovation and enterprise, and requires characteristics such as intellectual flexibility, open-mindedness, adaptability and a readiness to try new ways of doing things.</p>	<p>Using a Praxis Inquiry protocol, pre-service teachers will explore the conditions that support active and engaged learners by:</p> <ul style="list-style-type: none"> <li>• Asking questions about the relationship between teaching and learning;</li> <li>• Observing and reflecting on the processes by which teachers promote safe and secure classroom environments and relationships that support student learning;</li> <li>• Documenting professional practice and its relationship to students and their learning;</li> <li>• Using a range of genres to describe and reflect on your observations and drawing on a wide range of information about students to support reflections;</li> <li>• Using descriptive records to generate personal, school-based, theoretical and socio-cultural explanations of pedagogy;</li> <li>• Making connections with key literature to identify characteristics of pedagogy and the conditions for learning which seem most effective in engaging the individual needs of <b>all students</b>;</li> <li>• Developing confidence in working with groups and whole classes of students using an expanding pedagogical repertoire;</li> <li>• Applying understandings of learning to support the development of students' thinking, reasoning, creativity, meta-cognition and inquiry.</li> </ul>	
<p><b>Intercultural understanding</b> enables students to respect and appreciate their own and others' cultures, and to work and communicate with those from different cultures and backgrounds. It includes appreciation of the special place of Aboriginal and Torres Strait Islander cultures; respect for Australia's multicultural composition; communicating and working in harmony with others within and across cultures, especially in relation to cultures and countries of the Asia-Pacific; and appreciation of difference and diversity.</p>	<p><b>Cross-curriculum perspectives</b></p> <ul style="list-style-type: none"> <li>• Indigenous perspectives, to ensure that all young Australians have the opportunity to learn about, acknowledge and respect the culture of Aboriginal people and Torres Strait Islanders</li> <li>• a commitment to sustainable patterns of living</li> <li>• skills, knowledge and understandings related to Asia and Australia's engagement with Asia.</li> </ul>	<p><b>Social competence</b> will enable students to interact effectively with others by assessing and successfully operating within a range of changing, often ambiguous human situations. It includes initiating and managing personal relationships; being self-aware and able to interpret one's own and others' emotional states, needs and perspectives; the ability to manage or resolve conflicts and to foster inclusive and respectful interactions; and participating successfully in a range of social and communal activities. The ability to <b>listen and communicate clearly</b> to others in a range of situations.</p>

## CLIL in secondary science: Reorganizing the monolingual curricula for bilingual education in Sri Lanka

*Lakshmi Nettikumara & Manjula Vithanapathirana*

The University of Colombo

Bilingual education (BE) was first introduced to Sri Lanka in 2003 with the recommendation of National Education Commission to prepare students to face the challenges of the 21st century. Under the Bilingual education policy students are offered the option of learning some subjects in the English medium from grades 6-13. The principal objective of the Bilingual policy is to improve economic opportunities of students when they complete their education. A second objective is to enable students from different communities to study in the same classroom to promote social cohesion (The World Bank, 2011).

Bilingual education is practiced in many countries around the world with different perspectives. Of the different manifestations given by Leung (2005) Sri Lankan educational and social goals of bilingual education fits into the 'promotion of a foreign language in foreign language learning context'. Bilingual schooling prepares individuals to function in a global society, which has become a cornerstone of education in the twenty-first century. A recent definition describes a bilingual as a person who is able to understand a second language or communicate his message in a second language, regardless of the proficiency level. With proper instruction and time, bilinguals can continue to improve in the areas where fluency or competency is lacking, because bilingualism is a continuing process (Maftoon & Shakibafar, 2011). García (2009), a pioneer on bilingual education in the 21st century, argue that bilingualism is "not monolingualism times two" (p. 71).

The most common model for bilingual education is content and language integrated learning, very popularly known as CLIL. CLIL is an acronym for the content and language integrated learning. Content and Language Integrated Learning (CLIL) describes a pedagogic approach in which language and subject area content are learnt in combination. The distinctive

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feature of CLIL provision is that pupils are taught different subjects in the curriculum in at least two languages. In the bilingual education context the acronym L1 is used for the first language, the acronym L2 is used to denote the second or foreign language.

Thus, CLIL is considered as an inclusive and a flexible term. Research literature on CLIL affirms that it is a safe and promising way of teaching both the foreign language and a content subject. Coyle (2005, cited in Coyle, Holmes & King 2009, p. 12) explains the 4Cs as follows:

Content	integrating content from across the curriculum through high quality language interaction
Cognition	engaging learners through creativity, higher order thinking and knowledge processing
Communication	using language to learn and mediate ideas, thoughts and values
Culture	interpreting and understanding the significance of content and language and their contribution to identity and citizenship

The integration of these four dimensions is an important feature of CLIL. Coyle et al. (2009) and Coyle, Hood and Marsh (2010) describe that in CLIL, content dimension is not only about acquiring knowledge and skills. It is about the learner constructing their own knowledge and developing skills. Also the content is related to learning and thinking (cognition). To enable the learner to construct the content, it must be analysed for its linguistic demands and thinking processes that are needed as well. When the learning context operates through the medium of a foreign language, language needs should be related to the learning context. Thus, it is clear that both subject curriculum and teacher education curriculum should be strengthened if a CLIL model is to be implemented successfully.

The experiences of teacher education linked to content and language learning situations are varied greatly. As a result CLIL practice in their different country contexts are also reported to vary greatly. Thus, planning for CLIL in the curriculum varies according to the context. In a six country study of CLIL teacher education the conclusion was that they would not aim at the development of a completely specified syllabus for CLIL teacher training but rather develop a general framework, which would include major aspects of teaching in content and language integrated learning contexts which can be adapted to suit the different institutional contexts and teachers' needs (Coyle et al, 2009). Sri Lanka became a member of the world of CLIL since 2003. Ministry of Education Sri Lanka has accepted CLIL model introduced by Coyle in 2005 to promote Bilingual Education in Sri Lanka.

In the implementation of Sri Lanka bilingual policy the schools are required to teach Mathematics and Science in the English medium while other subjects are taught in one of the mother languages, Sinhala or Tamil. It is aimed through the bilingual education to develop the English competency of the nation without jeopardizing the position of two main national languages namely Sinhala and Tamil (Ministry of Education, 2012). In the Sri Lankan Context it is expected to maintain 'balanced Bilingualism' in the country, where bilingual programs that promote learning of and in two languages such Sinhala-English and Tamil-English are expected. The National Education reform proposal is as follows:

Bilingualism should be promoted by using English as the medium of instruction in

selected subjects such as Mathematics, Science, Technology including Computer literacy, Social Science in secondary grades, year by year from Grade 6, depending on the availability of teachers. It is expected that students will reach an acceptable level of proficiency in English at the end of junior secondary education without jettisoning Sinhala and Tamil which will continue to be the medium of instruction in selected subjects. (NEC, 2003, p.116-117)

Present bilingual education system uses more or less the same curriculum materials developed for the monolingual education stream and there has been no research conducted to assess the applicability of this curriculum to bilingual context. This research aims to probe on this aspect. Neranjani (2013) a bilingual researcher in Sri Lanka states that only a few researches have been carried out to identify the strengths and weaknesses in the practice of bilingual education in Sri Lanka

### Objectives of the study

The goal of this study was to conduct a study on the implementation of the science curricula in middle school within a bilingual education setting. The specific objectives of the study were as follows:

1. To determine how meaningfully the four dimensions of Coyle's 4C's model is addressed in the grade 6 to 8 science curricula in Sri Lanka
2. To explore the way of implementing the grades 6 to 8 science curricula at the CLIL classroom environments in Sri Lanka
3. To make recommendations to design a framework to reorganize the grades 6 to 8 science curricula to facilitate bilingual education using CLIL model in Sri Lankan context

### Methodology

Methodology adopted was qualitative. Content analysis of curriculum documents and multiple case studies of bilingual teaching and learning were the methods used for data generation. Grades 6, 7 and 8 syllabi cum teacher instructional manuals and the three textbooks were analyzed. The syllabi and teacher instructional manuals were analysed considering a check list which was prepared based on descriptors of the Coyle's 4C's model and a other related literature (Cummins, 1984; Mehisto, Marsh, & Frigols, 2008; Bently, 2010; Coyle et al., 2010).

Semi-structured focused group interviews were carried out with fourteen bilingual science teachers in five selected schools. The interview schedule was structured based on the expectations of the Coyle's 4C model.

Bilingual science classrooms in five schools were observed in order to understand how teachers implemented the curriculum. During the classroom observation, attention was paid to understand how the teacher attempted to teach in accordance with the components of Coyle's 4C's model integrating the content, cognition, communication and culture.

## Findings

The findings of the curricula analysis and case studies of schools are as follows:

### *Congruence of science curricula content to the dimensions of the Coyle's CLIL model*

The content dimension was more or less adequately organized in terms of six out of seven descriptors within the graded syllabi. The total number of activities present in science curricula for each grade was 56, 66 and 43 respectively in grades 6, 7 and 8.

*Table 1.* Meaningfulness of science content in curriculum materials

Descriptors of the content dimension	Grade 6	Grade 7	Grade 8
1. Is the theme familiar to the learner?(known to unknown)	90% (50/56)	84% (56/66)	93% (40/43)
2. Are the situations related to the learner's immediate environment?	90% (50/56)	84% (56/66)	93% (40/43)
3. Is it motivating them to study the theme?	93% (52/56)	100%(66/66)	95% (41/43)
4. Does the theme stimulate the learners thinking?	86% (48/56)	100%(66/66)	95% (41/43)
5. Can they predict based on the content?	31% (18/56)	75% (50/66)	95% (41/43)
6. Does the content is grade and age appropriate	100%(56/56)	98% (65/66)	100%(43/43)
7. Is the activity involves interactions?	53% (30/56)	59% (39/66)	72% (31/43)

The themes of the science curriculum content were familiar to the learners of the specific grades and the thematic arrangement was from 'known' to 'unknown', which scaffold learning. The curricular content was found to be age appropriate, stimulating and effective enough to motivate the learner. However, the activities suggested were not effective enough to make predictions based on content and promote enough interactions between learners.

The analysis of the student texts revealed that except the grade 6 textbook the other two texts were difficult to be read and comprehended by students. The language support in the texts was not adequate. As the texts were almost direct translations of the mother tongue texts the some of the technical jargon was too high for the level of the students.

In studying the textbooks, findings reveal that activities did cater to both the low order thinking skills of the learner. There was also a gradual increment of the high order activities in grade 7 and 8 respectively.

According to Table 3 except in the grade 7 text book, both grades 6 and 8 found to have a moderate emphasis on collaborative activities. However, in all texts the emphasis on individual type activities is more. Presence of iconic features was high in both grades 6 and 8 textbooks which is a favorable feature. As grade 6 level was the first exposure to CLIL it was a positive sign

to have this iconic feature in a considerably high proportion. However in grade 7, iconic features were shown in least amounts. When considering the receptive and productive skills almost all activities were more towards to develop reading skills

*Table 2. Cognitive processing dimension in science curriculum materials*

Descriptors of the cognitive processing dimension	Grade 6	Grade7	Grade8
1. Are there opportunities to develop low order thinking skills?	59%(33/56)	83%(55/66)	76%(33/43)
2. Are there opportunities to develop synthesizing and apply knowledge?	37%(21/56)	46%(31/66)	72%(31/43)
3. Whether the activity is well structured?(step wise organization)	87%(48/56)	95%(63/66)	100%(43/43)

*Table 3. Opportunities for Communication dimension in science curriculum materials*

Descriptors for communication dimension	Grade6	Grade7	Grade8
1. Are there any facilities to do collaborative learning?	56%(32/56)	39%(27/66)	60%(26/43)
2. Are there any group activities/group assignments etc?	32%(18/56)	10%(7/66)	65%(24/43)
3. Are there any iconic features along with the activity?	81%(45/56)	51%(34/66)	79%(34/43)
4. Do the activities involve co-construction and negotiation of meaning by students and teachers?	81%(45/56)	24%(16/66)	69%(30/43)

The analysis on the culture dimension of the curricular materials was somewhat vague. The descriptors developed seemed inappropriate to assess the reality of the situation as there isn't a significant division of sub-cultures in Sri Lanka.

#### *Congruence of implementation aspects of Science curricula with the dimensions of the Coyle's CLIL model*

The findings on the implementation of bilingual education in four of the case study schools revealed that except the school5 all other schools had started the program by 2005. The school5 had started bilingual classes in 2012. In schools 1 to 4 the number of students who entered the bilingual stream was on the decline over the years. At the initiation the entry to the bilingual stream had been based on entry tests. However, with time the demand to gain entry has declined in these schools. All schools except school5 had all three ethnic groups of children. The teachers

who were qualified to teach science were available in all schools. Although there had been training workshops for bilingual instruction the teacher participation had been poor

Table 4. Presence of culture dimension in science curriculum materials

Presence of culture dimension	Grade6	Grade7	Grade8
1. Is the content of the activity related to learner's own culture?	46%(26/56)	28%(18/66)	60%(26/43)
2. Does the content of the activity expose the learner to other cultures?	10%(6/56)	04%(3/66)	11%(5/43)
3. Do the learners get opportunity to compare and contrast practices in different cultures?	10%(6/56)	-	11%(5/43)
4. Does the activity enable the learner to welcome respect and tolerate other cultures?	10%(6/56)	-	11%(5/43)

The implementation of the bilingual lessons had several commonalities and a few school specific differences. Two of the schools did not even use the word 'bilingual' for the approach but referred to it as the English medium education (Schools 1 and 2). Three of the schools made attempts to implement the bilingual education stream (Schools 3, 4, and 5) in order to continue with the directive given by the ministry of education. However, the teacher competences to conduct bilingual science lessons using content-language pedagogy were poor. Of the components of the CLIL model, only the content dimension was given a prominent place. Following are a few comments made by science teachers:

*We always look at the book as a science teacher, if a language teacher looks at the same lesson she might see it with a different view. What I can say is that we always stick to the subject competencies (school 3)*

*As a subject teacher I cannot see any language exercises in the book (school 1)*

*Once I tried after attending a CLIL work shop, it is effective if someone guided us to select the exercise, because we do not have language teaching experiences (school 2)*

Neither the communication dimension nor the culture dimension was observed to be integrated to bilingual instruction. Mere delivery of the content using both L1 and L2 mix was observed without any systematic use of L1 to support the acquisition of L2. In schools 4 and 5 the teachers interpreted bilingual pedagogy as explaining the lesson in first language and giving notes for students to copy to be done in English. Another science teacher (school 2) indicated that she dictates notes in both L1 and L2.

It seemed that teachers were unable to distinguish the specific characteristics of bilingual pedagogy. One of the teacher's comments (school 4) is as follows:

*Honestly my main target is the subject competency. Not the language competency. Other thing is, if we target language competency we cannot complete the syllabus on time. I believe that a student must have the knowledge of science not the language. So it is our*

*duty to provide the subject knowledge not the language tasks. Without the knowledge they cannot answer the problem. At the same time the completion of the syllabus is also a problem*

The teacher in school 3 indicated that “If National Institute of Education or any other body provides us a supplementary book regarding the language exercise so then we can start teaching that part also”. Nevertheless, several teachers indicated that they face difficulties due to poor English language skills of students. Some teachers’ responses were:

*No we cannot have special programs although their language competency is so poor. Some cannot write the alphabet even. I have no idea how to help them. 90% of the students need extra assistance. But we two cannot do anything (school 4)*

*“Even though we stay after school for English classes the students do not stay” (school 3)*

One teacher (school 2) expressed that she has tried an innovation for language support.

*Tuesdays we organize a one hour language class for all bilinguals in the school, the principal also gives his support to make this a success. Ms Arundathi (other bilingual science teacher), the English teacher and I conduct this class. Hope the marks will rise due to this.*

The principals and teachers of schools 1, 2, 3 and 4 indicated that parental support for bilingual education in general was a problem due to student achievement issues. One of the principals indicated that “parents are very much keen on getting high test marks and when they get low marks they forced us to change the medium of the child”. However, in school 3 the parents of the students in the bilingual stream insisted their children should study in the bilingual stream. The principal indicated the reason for such in the following manner:

*In our school the situation is different. Parents force them to be in the bilingual class even without writing or learning. Because Muslims know the value of learning this language.*

## Conclusions and recommendations to design a curriculum framework

The main conclusion of the study is that the bilingual education is still at a low level of curriculum planning and implementation in Sri Lanka. Although, the objective of introducing bilingual stream is still considered as important a significant effort is yet to be taken for the development of the bilingual stream of education.

The curriculum materials should introduce the major focus for CLIL implementation. Mere translation of monolingual curricular materials is not appropriate to address the 4Cs model. The text books need to be adapted to make them more student-centred with simpler language and inclusion of opportunities for collaborative activity. Although Sri Lanka adopted the Do Coyle’s CLIL model it seems that that substantial adaptation of the said model has to be made in order to make it suitable for the Sri Lankan educational and cultural context. Descriptors developed from the international literature need further review and adaptation. Future research can address such issues.

The inherent problems of science teaching that prevail even with the implementation of the monolingual curricula seem to influence the bilingual teaching learning situations as well. Excessive teacher talk, teacher dominated classroom culture and lack of attention for science

process skills need reform. More effective methodological support for subject teaching has to be included in the materials as well as through workshops.

The English language instruction as a subject in the common curriculum has to be improved in order to gain the benefits of bilingual education. Also the language support given in bilingual student materials is not adequate. Hence, workbooks and other curriculum materials will have to be designed for the bilingual stream which would be of a different format from the student material of the monolingual streams.

The case study schools although had very little success on the program due to its planning and implementation issues there seem to be a greater potential for social integration of ethnic groups in the bilingual stream of study. Four of the schools had all three main ethnic groups of the country studying in the bilingual stream. The culture component of the CLIL model can be integrated to the curriculum effectively through further research on this aspect.

In considering curriculum implementation in usage of CLIL, the need to address teacher education requirements for bilingual pedagogy is visible as a priority. However, prior to the design of a teacher training package it would be essential to decide on the frameworks of the curriculum materials design. Future research need to focus on curriculum design and implementation on a pilot scale.

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## **A teacher's reflection on a three year study into the use of a concept map to develop conceptual thinking in the writing of academic essays**

***Patsy Norton***

Craigslea State Highschool

This text provides a perspective on a teaching and student learning experience tracked over a three year period by considering the teacher's learning rather than that of the students, as was the case in previous texts by this author (Norton 2013; 2014; in press). These earlier texts promoted the value of the concept map as a strategy for helping adolescent students to structure a conceptual argument within an essay. What was significant about the earlier papers was that they recorded a three year study of the learning of a core group of students with the one teacher, such that there was evidence of continuity of classroom-based practice and research into the efficacy of the strategy. The initial paper described classroom practice in the first year of using the concept map as an intervention to structure the writing of the essay. It was followed in the second year by a report on a case study of the issues faced by students in mastering the strategy, along with the subsequent adjustments made to pedagogy. The third account focussed on the significant benefit of the students' use of the strategy to a constructivist classroom culture. These accounts were about the what, why and how of student learning as well as the pedagogy enacted to implement the concept map as a strategy to support conceptual thinking.

I still marvel about how my decision to tailor the strategy to the needs of a core group of students in a particular context yielded such a satisfying and professionally interesting journey for me as a teacher and researcher. In this narrative reflection, I track that learning journey leading to a "legitimated subjective educational theory" (Kelchtermans 1993, p.444) about how students could best operationalise the concept map to support conceptual thinking. The text is a deliberate restorying (Randall 1995, Kenyon & Randall 1997, Mulholland & Wallace 2003) of teacher knowledge research, asserting that I know what I know (Clandinin & Connelly 1996). What follows is a reflection framed by the situative perspective on learning (Putnam & Borko

2000, p. 4), a theory which suggests three aspects of learning: first, the learning is situated in physical and social contexts; second, the learning is social in nature; and finally, the learning is distributed across the individual, other persons, and tools. This approach renders my hindsight narrative not just a more-or-less coherent reporting of experience but an organized, coherent composition (Gubrium & Holstein 1998, p.166).

### The physical and social context

My learning about the possibilities presented by the concept map started in my second year of teaching at the Queensland Academy for Creative Industries (QACI), a Department of Education and Training (DET) school in Queensland, Australia. At that time, there were two critical factors I identified about the Year 10 pre-Diploma students in my English class. The first was that they were highly receptive to learning how to learn: they responded to explanations of why and how to use a strategy and rose to any metacognitive challenge. Consequently, the classroom culture was from the beginning vibrant and interactive. It was a joy to walk into the classroom and learn with the students and that joy was sustained for three years. The second was that the International Baccalaureate English syllabus guiding teaching and learning in the subject demanded mastery of well-written, conceptual argument within the essay genre, which took the form of what was essentially literary criticism. Despite the narrow focus on literature, I constantly emphasized for students that structure is critical to the success of an academic argument in any subject in the IB Diploma and certainly to later university study (Davis & McKay 1996, p. 88). Because I was also the coordinator of a core 4000 word research task termed the Extended Essay, I was very conscious of the need for transferability of the learning from the English classroom to other contexts, so encouraged all students and their teachers to use the strategy in various subject contexts.

It should not be assumed that I was a second year teacher from my earlier statement about being in my second year of teaching students at QACI. Far from it. The concept map was a literacy-learning strategy I had used since the 1980s in Queensland schools, both public and independent, at various year levels, and within different subjects. It had also served me well in the tertiary education sector, supporting preservice teachers to conceptualize their philosophical approaches to teaching. I knew the concept map had the power to support dialogic teaching rather than monologic teaching (Reznitskaya et al. 2009, p. 31). Further, my knowledge of the strategy and its application to representing and organizing thinking in different subject contexts was based on more than tacit knowledge or knowing-in-action (Eraut 1994). The theory (Novak 1980; 1990) was familiar to me, with its focus on developing deep understanding by using abstract words to represent concepts and grammatical structures to show relationships (Salomon & Perkins 1989; Peskin, Allen, & Wells-Joplin, 2010; Norton 2013). It resonated with my mindset that successful students need to be metalearners. In addition, QACI was a school wherein students were very competent users of their Apple laptops, with access to software that made the construction of visual organizers such as the concept map both efficient and engaging. It was possible to model thinking-in-action by projecting construction of the strategy on to a screen, or to involve students in open and fierce discussion while re-organizing the nodes and links characteristic of the organizer.

What follows (Figure 1) is an example of a node-link concept map constructed to reflect a conversation about a child with autism, the protagonist in the novel *The Curious Incident of the Dog in the Night time* (Haddon, 2003). It was constructed at QACI prior to the three-year journey and ongoing modification to suit the context.

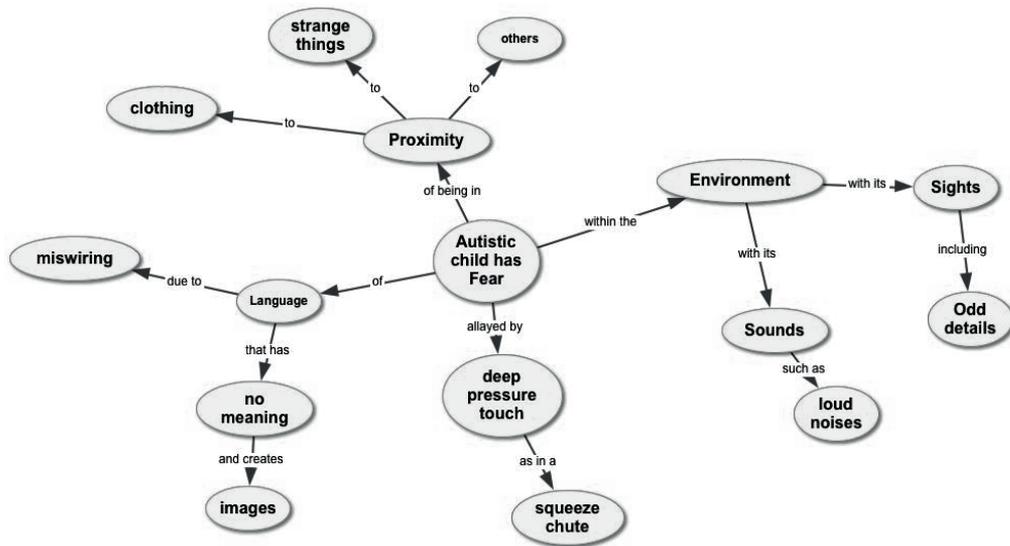


Figure 1. (Norton 2013)

The illustrated concept map reflects my knowledge at the time about the strategy, that:

- The central concept is in the central bubble.
- Each proposition (unit of meaning) is made up of nodes and links should be read as a sentence from the inside out.
- Node words (in bubbles) should be kept to a minimum.

It does the job of synthesizing what the students understood about the autistic child. However, it was not intended to structure argument, nor was it supporting an analysis of how and why the author achieved reader engagement with the novel. What was needed was a modification of the strategy to suit the need for literary criticism. This impetus was the start of the modification process. Over three years, validation of the modification became also legitimation of my subjective theory. In effect, I took a pragmatic approach to my teaching practice, adhering to Dewey's advice (1988, p.22) that "The principle of magic is found whenever it is hoped to get results without intelligent control of means". Those means are explored in the following section of the reflection, where I track the memory of my learning in the context described.

## The Social Nature of the Learning

If it had not been for the focus on literary criticism in the curriculum context described, I might not have progressed beyond seeing the concept map as a useful way of examining a concept and related subconcepts, as illustrated in Figure 1. That focus meant that students needed to analyse what literary techniques an author used in a text. More than that, to create a conceptual argument, they needed to consider why – that is, for what effect – techniques were adopted. Otherwise, essays were little more than an examination of a list of techniques and evidence. Initially, my means of addressing this problem was to place the theme of a literary text in the central bubble, as shown in Figure 2, based on Shakespeare's Sonnet 130.

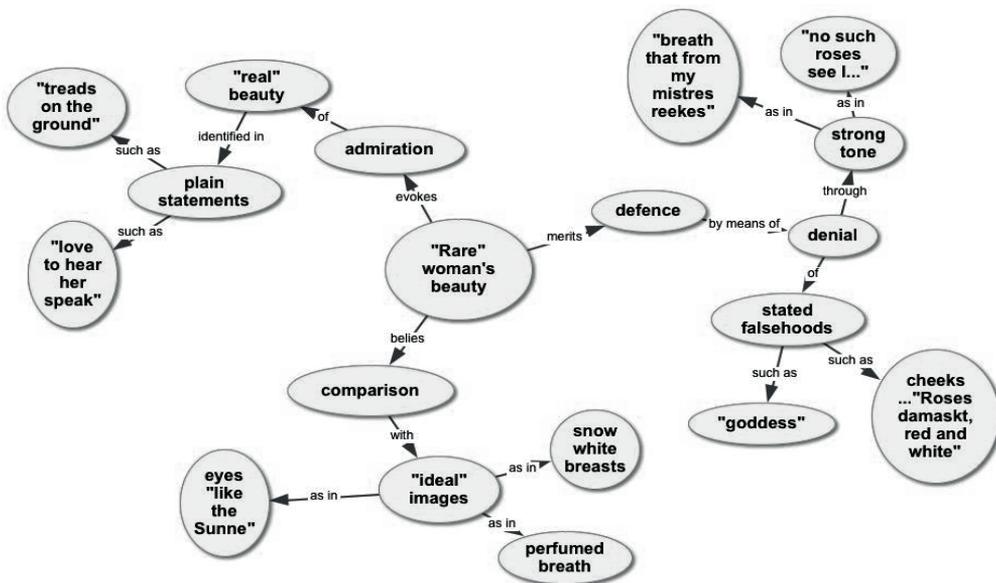


Figure 2. (Norton 2014)

As time went by, with numerous constructions of concept maps devoted to what was essentially thinking about literary criticism, I realized that it was the author who merited the central position of the key concept, rather than the theme of the literary text. This was a significant decision, leading to my conviction that students required adherence to a disciplined approach to layering the concept map, if it were to be an effective strategy for supporting a conceptual argument. It meant that each proposition would take the following form:

*Concept (verb as link) to sub-concept (link) to elaboration of sub-concept (link) literary technique (link) to evidence from text.*

What was more interesting was that I realized that the verb must be a strong, active and transitive verb, reflecting an author's purpose. This realization emerged from "talking aloud" in the process of constructing concept maps with students in the classroom and querying the purpose for an author's selection of a technique. The verb had to be a multi-argument verb with

both subject and object relationships, so that action flowed from subject to object. Initially, my identification of the nature of the verb came from either tacit knowledge, or knowledge-in-action. Students had to work harder to think about what the author was doing to the reader if a verb such as “juxtaposes” or “sustains” is used rather than one such as “does” or “uses”. Given this thinking, a proposition from Figure 2 would be:

Shakespeare evokes admiration of real beauty, identified in plain statements such as “treads on the ground”.

A proposition of this kind provides a key point in an argument rather than a statement of what tool the author used in a literary text. In addition, the verb required elaboration in later writing devoted to this key point. In the above proposition, for example, elaboration could be “The author brings forth or prompts the reader to recognize the beauty of the loved one in simple, understandable statements that are difficult to reject”. Thus the proposition provided both the topic sentence in a paragraph as well as elaboration as to what was meant by the key point in the argument.

Given this explanation, the focus on strong verbs and the discipline of the layered proposition was a major breakthrough in my learning about how to use the concept map most effectively in the classroom. Support for strong verbs, the linguistic complexity and accompanying challenge for learners in constructing multi-argument verbs (Thompson, Bonakdarpour et al. 2009) provided affirmation of my tacit knowledge, as well as understanding of the importance of the verbs to intellectual conflict and deep conceptual thinking. Selecting the strong verbs that constructed the relationship between concept and sub-concept meant hard cognitive work, as confirmed by my case study research (Norton 2014), even though a list of possible verbs was compiled collaboratively and systematically over the three years, including:

reflects, constructs, engages, interweaves, layers, sustains, designs, composes, upholds, proclaims, juxtaposes, synthesizes, determines, focusses, develops, ensures, inspires.

The case study was useful in that students articulated in both interviews and personal reflections how difficult it was to construct the base proposition of concept – verb – subconcept at the conceptual level required. Identifying literary techniques at the periphery of the concept map was not the difficult cognitive work. Nor was the identification of evidence from the text. Adhering to the discipline of the layers within each proposition was not a cognitive challenge; rather, it was effected by practice, time and trust in the value of the strategy as a means of constructing an effective essay. Strangely enough, it was the discipline of the layered proposition and my insistence on adherence to the discipline that I started to question at the end of the second year of the study. Because the students were so innovative, socially interactive and creative in joint constructions of the organizers, it seemed that the discipline might have been contradictory to the social constructivist culture of the classroom. This presented a dilemma, one I resolved by further investigation of constructivist theorists and a determination to clarify my thinking in writing about the constructivist culture of a classroom (Norton, in press). In this way, both the research and interaction with the theorists' beliefs, as well as the articulation of my personal beliefs, represented what I believe to be a classic example of the social nature of a practitioner-researcher's learning.



end of the third year of their study. However, the illustrated visual organizer (Figure 3) tells a story that is about more than hard data.

This student-constructed concept map will, I hope, deepen the reader's appreciation of how subjective my educational theory is, as well as focussing on the authenticity of my narrative. To this point, the learning process has been described in terms of the social and physical context and the variety of the social interaction supporting learning and validation of belief. It is the final characteristic of the situative perspective on learning that is detailed in the third section of my narrative.

### The distributed nature of the learning

It is interesting to consider the word "distributed" in reflecting on the teacher's learning in the process of developing a subjective theory. Putnam and Borko (2000) focus on the sharing of learning that can support cognitive performance, suggesting that the individual alone is not necessarily the owner of the knowledge constructed. So – ownership of this theory that the concept map with strong verbs and layered propositions is a significant benefit to structuring conceptual argument is not personally mine. It would appear, however, that there is considerable overlap between what is social and what is distributed, but I will attempt to explain how and why there is a distributed nature to this teacher's learning.

My learning has been stretched over others (Lave & Wenger 1991) because conversations and feedback in various contexts and by various means were essential to the legitimation of the theory. The most recent example of shared learning was a small workshop I ran for four pre-service teachers, all potential teachers of English, in my current school (which is not QACI). I disseminated my belief in the modified approach to the strategy, engaging the tertiary students in dialogue as we constructed a concept map about a novel. At the same time I refined my ability to justify and apply my theory and adjusted my pedagogy for the adult learners, thereby testing its efficacy for others. This dialogic approach (Reznitskaya, et al. 2009) seems to me to exemplify distributed learning. Over the three years of the study, however, two specific types of sharing or interaction stand out as being significant contributors to distributed learning, both characterised by electronic mediums and/or broad community access: first, there was online interaction with students and colleagues in QACI; and second, the documentation of learning-in-process in papers or articles has been published in professional journals.

Students used online resources readily in QACI. Hence, my electronic models of the strategy were uploaded to a central data base/learning resource area for all to use, criticize and modify. What most teachers and students utilised, however, was the taped record of classroom activities I uploaded to show how we (students and teacher) engaged in collaborative constructions and highly productive intellectual conflict (Johnson, Johnson, & Smith, 2000). One of my students confirmed this as she noted that she listened to the discussion or argument in the bus, daily. Other teachers' students used the concept map lessons as a form of social media, so "the word spread". Feedback from teachers and students added to my knowledge about any issues with the strategy, such as the difficulty in identifying strong verbs as links in the propositions. Such feedback challenged my beliefs and ensured I was able to justify the need to take a disciplined approach to layering the propositions.

Outside that comfortable school context, I tracked the students' learning over a three year period in a more public context, confirming that I knew what I knew in that particular knowledge landscape (Clandinin & Connelly 1996). In the three papers, both content knowledge and pedagogical knowledge were intertwined with theoretical knowledge as I engaged in more and more research about the strategy. The final paper was perhaps the most challenging for me because I used the writing of the paper to resolve my dilemma about the possible negative effect of too much explicit instruction and discipline being given about the syntax of the proposition. (This has been mentioned in earlier comments.) This dilemma suggests that at the time I was not sure of what I knew I knew. That is true, in this particular case, but the sharing or the distribution of the knowledge finally articulated was the key to the final legitimization of my subjective educational theory about this strategy. The key was that both endogenous and exogenous (Moshman 1982; Norton, in press) constructivism could co-exist. The explicit instructions and disciplined approach to layering the propositions and the syntax within the propositions made intellectual conflict in the form of contribution to group discussion much more productive and focussed. In addition to deepening my understanding of how to manage the pedagogy supporting the concept map, all three papers submitted for publication enabled me to gain feedback from editors and others educators, thereby adding to my level of knowledge. My learning was stretched over others, exemplifying the value of distributed learning.

## Conclusion

As noted earlier, in this reflection there is overlap between learning that is distributed and learning that is social in nature, while the context for the learning is a significant influence on all aspects of the learning. The three aspects of the situative perspective on learning have, however, facilitated an organized and coherent account of how a teacher's learning encompassed these overlapping aspects. Further, writing within the framework of the three aspects has challenged me to examine why and how I came to a belief in the concept map as an effective strategy supporting deep understanding, with evidence of that in the following example (Figure 4).

My restorying has described the learning of one teacher in one school with a core group of students over a three year period. The focus has been on the concept map as a strategy for constructing conceptual argument to structure an academic essay within the curriculum context of the IB Diploma. Readers may argue that there is limited applicability of this story due to the nature of the student cohort, the time span and curriculum, as well as the strategy. However, the text given, along with the illustrations provided, shows not only the implementation of pedagogy in an educational sector, but most importantly, how a teacher was able to develop a legitimated subjective educational theory and feel confident enough in her belief to tell others that she knew what she knew.

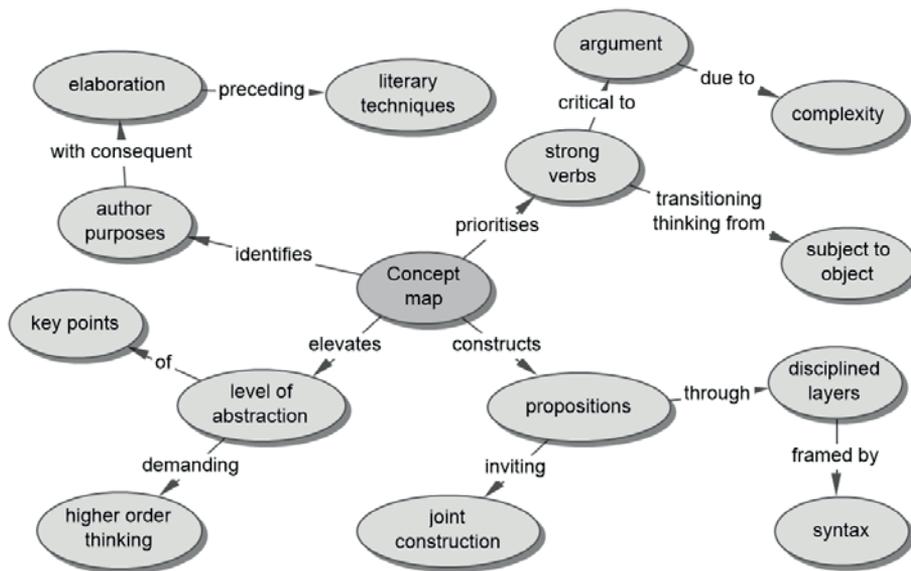


Figure 4.

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## Teachers' competencies through the students' eyes

*Cirila Peklaj & Katja Depolli Steiner*

The University of Ljubljana

Social reality is becoming very complex. Rapid development of new technologies, globalization and increasing inequity in the society is making our lives less and less predictable. In order to be successful in such complex and changing environment one needs competencies that will enable him/her to cope with these changes and learn through the entire life. OECD proposed three groups of competencies that will enable an individual to be successful in the 21<sup>st</sup> century, namely competencies to work in heterogeneous groups, competencies for autonomous planning and decision making and abilities to use symbolic systems such as language, mathematics and IT (information technology) (Rychen & Salganick, 2001; 2003). High quality education is a necessary condition for the development of these competencies.

Research on educational productivity (Hattie, 2009; Marzano, 2003; Walberg, 2006) emphasizes the quality of teaching as one of the major factors influencing students' optimal development and achievement in the school. According to the estimates, teacher quality can explain between 7 to 21 percent of variance in students' achievement (Nye, Konstantopoulos & Hedges, 2004). Teachers have to develop complex competencies in order to facilitate students' optimal development and "equip" them with competencies that will enable them to successfully cope with the demands of the changing society. Consequently, the teacher training process has to prepare student teachers for their highly demanding role. A very important question arising from these high expectations is how to design teacher education to achieve this goal. In our study, we will be interested in the first step in the future teachers' competency development, namely in eliciting their experiences and beliefs about teachers' quality and comparing them with the results of educational research on teachers' competencies. A model of teachers' competencies will be developed that will serve as a framework for this comparison.

## Students' perspective of teachers' competencies

By the time students achieve the university level, they will have accumulated an enormous amount of experience with teachers and teaching. According to constructivist approach to learning, students develop their cognitive structure based on their previous knowledge. They compare and contrast the input information with the existing knowledge base and continuously construct meaning. Piaget's cognitive disequilibrium mechanism and processes of assimilation and accommodation take place in the process of change in their knowledge (Sosu & Gray, 2012). Thus, identifying characteristics of their excellent teachers could be the students' first step to learn about teaching.

Another theoretical perspective that emphasizes the importance of eliciting previous experience in learning and combining it with the existing theoretical knowledge is Kolb's experiential learning (Kolb, 1984). Experiential learning assumes that learning takes place when students combine two dimensions, concrete experience with abstract conceptualization on the one hand, and reflective observation with active experimenting on the other hand. Thinking about concrete experiences and competencies of excellent teacher, comparing them with empirical knowledge on quality teaching, includes at least three components of Kolb's learning cycle (i.e. concrete experience, reflective observation and abstract conceptualization) and thus forms a solid base for active experimentation in teaching practice.

Research showed that students validly assess teachers' competencies. Students' evaluations were more consistent with external observers of teachers and their teaching than with teachers' self-reports on their teaching and relationships with students (Cornelius-White, 2007; Decker, Paul Dona & Christenson, 2007). They also showed that students' experiences influence formation of their beliefs about learning and teaching which further impacts their actual teaching in class (Sosu & Gray, 2012). Our first research question based on these theoretical perspectives and empirical findings was: What are the most important teachers' competencies that defined teacher quality according to students' experiences?

## The model of teachers' competencies

The competencies are defined as ones' ability to *successfully meet complex demands in a particular context through the mobilization of psychological prerequisites* (Rychen & Salganick, 2003, p. 43). Teachers' competencies comprise a cognitive level (the ability of complex thinking, problem solving and using knowledge related to teaching and students' learning), emotional-motivational level (emotions, attitudes, values related to students, teaching and learning) and behavioral level (their ability to activate and use their potential in complex school situations). In our study, we used the concept of teachers' competencies to describe complex instructional, classroom management, problem solving, communication, assessment methods and strategies teachers have to use to achieve complex demands in their teaching.

Research on teachers' effects on students' achievement is extensive (Hattie, 2009; Marzano, 2003; Walberg, 2006) and we need a framework to synthesize the existing information and reflect upon the effects of teachers' competencies on students' outcomes. The starting point of our analysis was a notion that teachers have to promote students' overall development and therefore they have to take into account students' cognitive, affective-motivational and social

processes in the class. Teachers will achieve the best synergetic effect on students' outcomes when all three levels are in balance. For example, a teacher emphasizing cognitive processes in students' (e.g. very high grades, perfect performance) and at the same time neglecting affective and social processes will not achieve the same results in students as a teacher who would balance all the levels of processes. He/she may promote cognitive processes with challenging tasks and at the same time allow students to make mistakes as a way to learn something and promote positive climate and cooperation in the class. Teachers' competencies for achieving the synergetic effects in students can be classified in three groups, namely the teachers' competencies for promoting cognitive processes in students, teachers' competencies for promoting affective-motivational processes in students and teachers' competencies for promoting social processes in students. The model is presented in Figure 1.

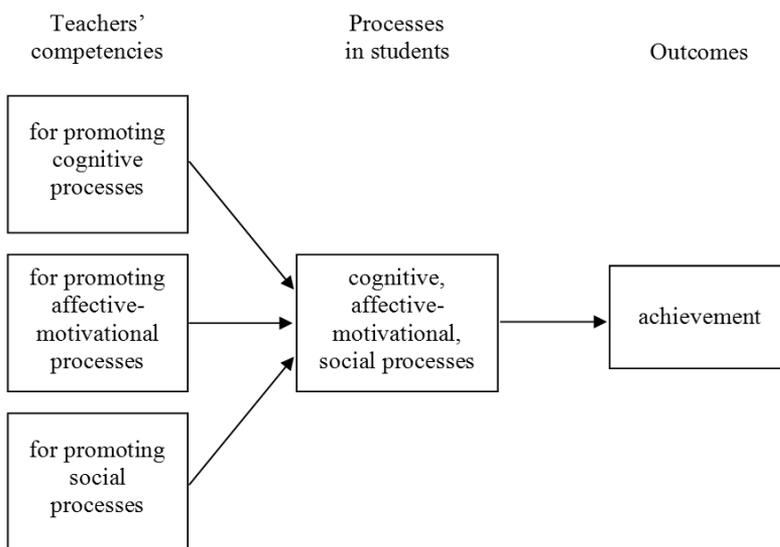


Figure 1. Model of teachers' competencies and their effects of students' outcomes.

In order to find the most important teachers' competencies in each of the three groups influencing students' achievement, we analyzed synthetic studies (i.e. Beesley & Apthorp, 2010; Hattie, 2009; Marzano, Gaddy & Dean, 2000; Walberg, 2006) and some other meta-analyses (e.g. Kablan, Topan & Erkan, 2013; Carbonneau, Marley & Selig, 2013). These studies investigated the relationship between cognitive and non-cognitive aspects of teachers' work in the class and students' achievement. We also used Hattie's (2009) recommendation that effect sizes larger than 0.40 are those that already mean evident improvement in educational practice as a criterion to select a certain competence.

The first group of teachers' competencies includes instructional competencies related to teaching method and techniques of how to present the learning content and convey the meaning to students (Hill, 2014). They enable students to process the information efficiently and store it in the long-term memory in such a way that they are able to use it. The first teachers' competence is to activate students' cognitive structure by activating and assessing previous knowledge (Marzano et al., 2000; Walberg, 2006), and defining learning goals (Hattie, 2009) in

order to help students fill the gaps in knowledge. Another important teachers' competence is their verbal clarity, the appropriateness of the language they use (Hattie, 2009) and the use of nonverbal aids (i. e. pictures, maps, graphs, concrete objects) (Carbonneau et al., 2013; Dexter, Park & Huges, 2011; Hattie, 2009) to help students process the information in verbal and non-verbal channels. The systematic use of IT to support verbal explanations is also an important competence that could improve achievement (Tamim, Bernard, Borokhovski, Abrami & Schmid, 2011). Teachers' competencies that foster cognitive processes are related to posing high quality questions, emphasizing similarities and differences, setting and testing hypothesis (Apthorp, 2010; Marzano et. al., 2000; Walberg, 2006). With these competencies teachers promote classification, comparison, creation of metaphors and therefore increase students' achievement. Another very important teachers' competence for promoting students' monitoring, self-evaluation and self-regulation in learning is the teachers' ability to give appropriate formative feedback during the class or in homework (Hattie, 2009; Walberg, 2006).

The second group of teachers' competencies is related to students' affective-motivational processes. Research consistently showed large positive effects of positive student-teacher relationships on students' achievement (Cornelius-White, 2007; Hattie, 2009). Teachers' affective competencies related to their ability to form such positive relationships are their non-directivity, their ability to show empathy, warmth, respect toward students and ability to adapt to individual students' needs. All these competencies influence students through their perceptions of positive emotional climate in which they feel safe, respected and appreciated. Another important affective teachers' competence is their enthusiasm, passion toward their subject and teaching profession (Hattie & Clinton, 2008).

From the motivational point of view teachers' competence for setting relatively high, challenging learning goals affects students' outcomes (Hattie, 2009). Teachers have to show students that they believe in their abilities to learn, regardless of their level of abilities. Teachers' ability to promote students' self-efficacy is also consistently related to students' engagement, their persistence in learning and consequently their achievement (Hattie, 2009).

The last group of teachers' competencies that influence students' achievement is related to social processes in students (Roseth, Johnson & Johnson, 2008). Teachers should promote connectedness and social inclusion in the class, where no one feels excluded, where cliques and friction are prevented (Hattie, 2009). Positive social processes can be achieved through competent classroom management including well structured learning activities, promotion of academic social skills, disruptive behavior prevention (Marzano, 2003) and by systematically developing positive peer influence through cooperative learning activities.

To sum up, we wanted to answer three main questions in our study:

1. Which are the most important teachers' competencies according to students' perspective that make a high quality teacher?
2. Are perceived teachers' competencies consistent with the proposed model based on competencies found in educational research?
3. What are the implications of our findings for educational practice?

## Method

### *Participants*

The participants were 178 3<sup>rd</sup> year undergraduate psychology students at the University of Ljubljana (15 male and 163 female students) from three consecutive school years (2012/13, 2013/14 and 2014/15), who attended the "Psychology of teaching" course. The psychology graduates can either work as psychologists or teach psychology in general secondary schools (gymnasium). This course prepares them for both professional roles. The students' age ranged from 20 to 22 years.

### *Procedure*

Data collection took place at the beginning of the course, during an introductory exercise. The goal of this exercise was to stimulate the students' reflection on personal experiences with their former teachers as a starting point in the topic of teachers' competencies. The exercise we used is a modified version of reflection tool "My most remarkable teacher" (ITQ, 2006-2009). It started with the students' individual work. We asked the students to remember the best primary or secondary school teacher (K-12) they'd ever had and describe two situations in which the teacher's qualities (i.e. traits, skills and behaviors, attitudes and values) were clearly evident. In the second phase, students worked in pairs. Their task was to compare the similarities and differences between the teachers they described and compose a list of teacher qualities and values. In next step they formed groups of two pairs and continued to discuss the best teachers' qualities. The lists of an excellent teacher's qualities from these discussions were used in our analysis.

### *Data analysis*

We classified the students' answers into three categories, namely teachers' competencies for promoting students' cognitive processes, affective-motivational processes and social processes. We read the students' answers in each category several times and formed more specific subcategories. To assure validity and reliability of the classification both authors independently classified 25% of all students' answers in these subcategories. The congruence between classifications was 85 percent. All differences were resolved by discussion. The second author made the final classification.

## Results

Table 1 includes the results of data analysis of the teachers' competencies that were listed by students. The competencies are organized into three categories and within each category into more subcategories.

The majority of the listed competencies belong to the teachers' competencies for promoting affective-motivational processes in students (41% of all competencies), closely followed by teachers' competencies for promoting cognitive processes (36%). The last category, teachers' competencies for promoting social processes, is considerably less mentioned (23%). The difference between categories' frequencies is significant ( $\chi^2(2) = 31.34, p < 0.001$ ).

Table 1. Frequency of the best teachers' competencies listed by students

Category	Subcategory	Frequency	% inside category	% of total
Cognitive	Verbal clarity	67	31.8%	11.5%
	Promotion of higher mental processes	51	24.2%	8.8%
	Different illustrations	39	18.5%	6.7%
	Formative feedback in the class and homework	27	12.8%	4.6%
	Planning and goal setting	17	8.1%	2.9%
	Assessment of previous knowledge	8	3.8%	1.4%
	Self-evaluation	2	0.9%	0.3%
	Total	211	100%	36.3%
Affective-motivational	Adapting to individual differences	70	29.4%	12.0%
	Students' motivation	34	14.3%	5.9%
	Positive relationships with students	34	14.3%	5.9%
	Warmth	29	12.2%	5.0%
	Positive attitude toward subject and teaching	25	10.5%	4.3%
	Non-directivity	14	5.9%	2.4%
	Empathy	14	5.9%	2.4%
	Respect for students	14	5.9%	2.4%
	High expectations	4	1.7%	0.7%
	Total	238	100%	41.0%
Social	Classroom management	96	72.7%	16.5%
	Classroom climate	32	24.2%	5.5%
	Classroom cohesion	3	2.3%	0.5%
	Cooperation with parents	1	0.8%	0.2%
	Total	132	100%	22.7%
Total	581		100%	

Regarding the teachers' competencies for promoting affective-motivational processes in students a considerably larger part of students' answers (84% inside this category) is related to affective processes. By far the most frequently mentioned competences are those in the subgroup *adapting to individual differences* (i.e. teacher is "flexible", "fair" and "knows how to work with students with learning difficulties"). They are followed by the competencies related to the teachers' ability to form *positive relationships with students* (i.e. teacher is "kind", "tries to get to know students"). Other frequently mentioned teachers' competencies are their *warmth* (i.e. teacher "is ready to help", "offers support"), their *non-directivity* (i.e. teacher "is accessible", "allows mistakes"), *empathy* (i.e. teacher shows "empathy" and "understanding") and *respect for students* (i.e. teacher "is respectful" and "has trust in students"). Another competence for promoting affective processes mentioned several times is the teachers' *positive attitude toward subject and teaching* (i.e. teacher "is interested in his/her subject" and "teaches with enthusiasm"). Of the competencies for promoting motivational processes, only one was frequently mentioned, namely *students' motivation* (i.e. teacher "encourages learning" and has "interesting lessons"). Another teachers' motivational competence, *high expectations*, was listed only a few times (i.e. "has appropriately high yet not unreachable expectations").

The most frequently mentioned competencies in the group of teachers' competencies for promoting students' cognitive processes are: *verbal clarity* (i.e. teacher "is knowledgeable about

the subject matter", "clearly explains content"), *promotion of higher mental processes* (i.e. teacher "stimulates discussion", "emphasizes critical thinking") and *different illustrations* (i.e. teacher "uses IT", "nonverbal aids" and "examples"). Another competence with high frequency is *formative feedback in the class and homework* (i.e. "constructive criticism", "timely feed-back" and "regular knowledge assessment"). Less frequently mentioned were *planning and goal setting* (i.e. instruction is "well-structured", "the goals are set clearly") and *assessment of previous knowledge* (i.e. "noticing students' lack of understanding"). The last competence in this group is *self-evaluation* ("ability of evaluation and self-evaluation"), which was mentioned only twice.

Regarding teachers' competencies for promoting social processes in students, the most frequently mentioned one is *classroom management* (i.e. teacher "sets clear rules" and "maintains discipline", teacher is "organized", "punctual" and "respected by students"). There were several mentions of the teachers' ability to maintain *classroom climate* (i.e. teacher is "open" and "responsive"). The last two competencies in this group, *classroom cohesion* and *cooperation with parents*, were mentioned only a few times.

The comparison of the most frequently mentioned competencies across categories shows that these are verbal clarity, promotion of higher mental processes and illustrations in the cognitive category, adaptation to individual differences in the emotional-motivational category and classroom management in the social category.

## Discussion

In our research, we were interested in the comparison of students' perceptions of their teachers' competencies that define high quality teaching and the actual competencies that were found to define high teachers' quality in educational research. First we analyzed the student perspective of their teachers' competencies. The results showed significant differences between the three major categories of perceived teachers' competencies. The most frequently cited teachers' competencies fall in the affective-motivational category, they are followed by competencies in the cognitive category and the last are competencies falling in the social category. The most pronounced teachers' qualities in students' experiences are those related to affective processes that form the basis for good relationships with students, namely, teachers' warmth, respect, empathy, non-directivity, appreciation of students' individual differences. This result is consistent with other research that found high impact of student-teacher positive relationships on students' achievement (Cornelius-White, 2007; Hattie, 2009). Positive emotions in students can impact their active engagement in the class, their effort and use of more complex and demanding cognitive processes that impacts their achievement. Students' perceived teachers' competencies for promoting cognitive processes that enable them to create complex, well structured knowledge base in different subjects, are the second most important group of teachers' qualities. This result is also consistent with the research which showed that teachers' clarity, ability to activate students' cognitive structure, their higher-order thinking processes and ability to give accurate feedback are among the most important teachers' competencies influencing students' achievement (Hattie, 2009; Marzano et al. 2000; Walberg, 2006).

The third group, teachers' classroom management competencies, was far less pronounced by students, as was expected according to the research (Hattie, 2009; Roseth, Johnson &

Johnson, 2008). This difference in perceived categories might happen because teachers who were able to form positive relationships with students and have highly developed instructional competencies did not have to exert their control in the class in an explicit way. Their classroom management practices might be executed in a more smooth and covert way as a preventive strategy.

Our second research question was related to correspondence between perceived teachers' competencies by students and the proposed model. The results showed that students' perceptions of teachers' competencies could be classified into three main categories proposed by the model. Further analysis of subcategories in each broader category of teachers' competencies revealed high consistency with teachers' competencies found in educational research (Hattie, 2009, Marzano et. al., 2000; Walberg, 2006). Students identified the most important competencies for promoting students' cognitive processes, teachers' clarity in explanations, ability to elicit prior knowledge and complex mental processes and their ability to give formative feedback to students. The same result was found for emotional-motivational processes. Students mentioned all competencies influencing positive emotions related to learning and teaching, as well as motivation. The only competence students did not mention is the teachers' ability to promote students self-efficacy, but this competence could be included in more general description of teacher competencies (i.e. teacher motivated, encouraged students). Students also identified teachers' classroom management competencies for establishing discipline, working and cooperative climate, but only a few mentioned teachers' competences for developing classroom cohesion.

We can draw some practical implications from our results. At the beginning of teacher education educators can use students' reflections on their teachers' competencies to connect their experiences with the empirical findings of educational research. Three important aspects could be emphasized. First, it is important to take into account students cognitive, affective-motivational and social processes in the class and therefore, future teachers need to develop all three aspects of teachers' competencies during their training. Second, educators have to stress the importance of affective aspects of teachers' competencies that can be sometimes underestimated in relation with future teachers' instructional competencies. Positive relationships with students are the basis for stimulating students to engage in cognitively demanding school tasks and develop their knowledge. Third, educators have to emphasize the importance of competencies that students did not identify as the best teachers' qualities very often, but were found in research to have high impact on students' outcomes (e.g. classroom cohesion).

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## Making a different difference: Students reading of critical pedagogy in PETE

*Rod Philpot*

The University of Auckland

Issues of social justice and equity in education gained some prominence in the 1970's with the emergence of Freire's (1970) *Pedagogy of the Oppressed*. Academics such as Michael Apple, Henry Giroux, Peter McLaren, Stanley Aronowitz, bell hooks, Ira Shor, and Joe Kincheloe reiterated Freire's appeal for socially just education through work that analysed educational practice and put forth alternative approaches to education that privileged equity, social justice and critical inquiry. Cochrane-Smith (2010) recently suggested that social justice is now a theme in most initial teacher education (ITE) programmes. Notwithstanding this emergence, what is currently done in ITE classrooms in the name of social justice education, and the tangible outcomes of social justice oriented education are less clear (Larson, 2014). One of the alternate ITE practices that moves beyond the acquisition of technical skills to educational experiences that address issues of equity and socially just teaching practices is teacher education underpinned by critical pedagogy.

Critical pedagogy focuses on transforming social inequality and empowering those without power (McLaren, 1989). While its origins are located in the critical theories of the Frankfurt school (Held, 1980), critical pedagogy has evolved from a critique that focuses on the oppressive nature of capitalism to include specific theorizing of oppression based on culture, ethnicity, gender, religion and sexuality (Cho, 2013). Critical pedagogy is a perspective on education that privileges understanding of dominant ideologies and counter hegemonic strategies (Bartolome, 2004). Critical pedagogy is context specific and organic in the sense that it adapts and responds to changing environments and social situations. Critical pedagogy is therefore not a homogenous set of ideas, nor a method. Hinchey (2006) proposes that recipes are simply not possible in critical classrooms. The plural, critical pedagogies, will be used for the rest of the chapter to encapsulate and include all forms of oppression and all approaches to naming and acting on oppressive structures in education (Freire, 1970).

The introduction of new ways of theorizing oppression such as queer theory, critical race theory, feminist theories, post structural theories and critical humanism have served to both augment and fragment critical pedagogy. The growing body of literature identifying structural inequities has brought attention to issues of race, gender and sexual discrimination. Amidst these growing theoretical differences, Gur-Ze'ev (1998) reminded advocates of critical education that there is no 'one' enacted critical pedagogy as critical pedagogies are always tailored to individual contexts. Soon after, Lather (2001) suggested that the heterogeneity of critical pedagogy needed to be embraced as all of the critical projects were equally committed to social change. The emerging theoretical diversity highlighted a growing tension amongst critical educators. McLaren (2002) called for a less fragmented critical pedagogy that returns to its Marxist roots. Academics supporting this view claim that these other issues of oppression would be solved if issues of class structure were resolved (Kincheloe, McLaren, & Steinberg, 2012). In last few decades, amidst the theoretical growth, there has been limited research that explores how educators understand critical pedagogies (Breuing, 2009). There are few research projects that report on initial teacher educators' (ITEs) and classroom teachers' understanding, and use of, critical pedagogies. The following two studies highlight some of the tension surrounding the theorizing of critical pedagogy that have led to 'slippage' and varied understandings.

Breuing (2011) offers insight into varied understanding of the aims, purposes and practices of critical pedagogy. For the 17 self-identified critical pedagogues teaching in ITE programmes in the US and Canada who participated in her study, there was limited consensus on what a self-identified critical pedagogue meant. For some participants it meant teaching *about* critical pedagogy while for others it revolved around the 'practice' of critical pedagogy in their classrooms. Breuing (2011) reports that student-centred / constructivist teaching was the central purpose of critical pedagogy. She observes that, "the results of my study point to the need for critical pedagogy to work toward better explication and communication of its social justice orientation..." (p. 12).

An earlier study by Muros-Ruiz and Balboa (2005) provides one example of the 'slippage' between literature and practice. Muros-Ruiz and Fernandez-Balboa (2005) report that more than half of the 17 PETE teacher educators who claimed to practice critical pedagogy did not understand the main principles of critical pedagogy. Moreover, many of the methods they used in their PETE courses were incongruent with these principles (Muros Ruiz & Fernandez-Balboa, 2005). The authors suggest that the limited success of critical pedagogy in PETE may be due to the very limited understanding of the principles and purposes of critical pedagogy by the very TEs purporting to enact it.

While the growing body of research suggests that ITE staff who identify as critical pedagogues have different understandings and unique practices of critical pedagogy, there is a paucity of research examining the sense ITE students make of critical pedagogies when they are taught or used in teacher education. This research chapter builds on the critical ITE literature by exploring the understandings of critical pedagogy of 19 students who are in their fourth and final year of an ITE programme that espouses to be underpinned by a critical orientation. The significance of this study is that it presents an opportunity to explore the possibility that a programme with "a shared professional ideology [critical pedagogy] ....will have greater impact on recruits (Lawson, 1983, p. 10). The unique context provided in this study enables the researcher to

explore the influence of a critical ITE programme, rather than just individual critical courses, on ITE students' understanding of and engagement with critical pedagogies.

## Research setting

The setting for this study is the Bachelor of Physical Education (BPE), a four year PETE programme at Te Ika a Maui University<sup>58</sup> that espouses an underpinning critical pedagogy. I have recently completed a critical discourse analysis of the programme that highlighted many features that are consistent with critical pedagogy. Critical practices such as reflecting on biographies (Fernandez-Balboa, 2009; Giroux, 1981), democratic classrooms (Fernandez-Balboa, 1995), challenging dominant discourses (Kirk & Tinning, 1990) and problematizing knowledge (Gore, 1990; Kirk, 1986; Tinning, 2002) are espoused in 15 of the 26 compulsory courses in the BPE programme. Many of the learning outcomes from courses use verbs such as; 'critically reflect', 'evaluate', 'appraise' and 'critically examine', that further suggest the problemization and social construction of knowledge. While not all courses and not all teacher educators in the BPE programme foregrounded critical pedagogies, there is evidence that critical pedagogies are represented across courses in each of the four years of the BPE programme.

## Methodology

Data were collected through focus group and semi-structured interviews with students who were in their final year of the BPE programme. The participants were selected through purposive sampling. Students were required to complete the degree in the year they were interviewed. The participants reflected the diversity of the BPE students. There were nine female and 10 male participants. The participants ranged in age from 21 to 41. Twelve of the participants identified as European, three as Samoan, two as Maori<sup>59</sup>, one as Maori / European descent while one student identified as Samoan, Maori, and European.

Data were analysed through a five stage process of thematic analysis (Braun & Clarke, 2006). Initial coding of the interview transcriptions took place while I listened to the audio recordings. Inferential coding, that is, a focus on looking for patterns, followed. As data from interviews were collected over an 18 month period, these codes were revisited and changed new transcripts were read. A visual representation using theme maps (Braun & Clarke, 2006) was used to elucidate themes. These themes draw on the researcher's own theoretical understanding of critical pedagogy and focus on a 'search' for student understanding of critical theories, critical pedagogies and other examples of teaching that foreground social justice.

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<sup>58</sup> pseudonym

<sup>59</sup> Maori are the indigenous people of New Zealand

## Findings

The participants in this study were asked about their understanding of critical pedagogy in both focus group and individual semi structured interviews. In this section I have identified three themes that summarize their responses.

### *Theme 1: Critical pedagogy as 'reflection on teaching'*

Reflective teaching resonated strongly with the majority of the 19 participants as part of their understanding of critical pedagogy. Steven recalled that critical pedagogues had to keep, “*questioning what you are teaching...you can be playing games and stuff but there are times when you need to be questioned how it can be done better*” (Focus group Interview 1). Jess similarly proposes that critical teachers need to,

*ask [themselves] did my students learn what we set out to learn, or what did they learn specifically? Did some people not learn?...What do I need to do better next time. It's that constant reflection and asking the real questions to then further your practice.* (Focus group Interview 2)

Gail states that critical pedagogues are constantly, “*questioning [their teaching] and making sure that it's working so that you are always bettering yourself, so that you are not sort of complacent in your teaching*” (Interview 2).

These examples of reflection on how one teaches and how one could teach differently are described by Gore (1990) as ‘technical reflection’. While these comments focus on the act of teaching, they fail to acknowledge questions of ‘for whom the lesson may be right?’ or ‘what constitutes a successful lesson?’ There is no indication that these participants consider that how or what they teach may privilege or disadvantage different students.

Along with the ‘technical reflection’, there are an equal number of students that identify the important of ‘critical reflection’, that is, the examination of the values and assumptions that underpins the way one teaches. Brenda highlights that “*...being critical is kind of questioning why you decide to do things and where your assumptions and decision making has come from*” (Interview 2). Dillon states,

*for me critical pedagogy is always having an underlying reason for what you are doing. Not just 'we're doing hockey', [but] why? What's the why behind it? What's the how behind it? Who is it going to benefit? Who is it going to be good for?* (Interview 2)

Critical reflection represents a ‘critical pedagogy’ as the reflections move beyond the routine day to day actions of the teaching process, focussing instead on the political and ethical principles that underpin teaching (Smyth, 1989). A critically reflective teacher makes decisions based on conscious awareness and careful consideration of the assumptions upon which decisions are based (Yost, Sentner, & Forlenza-Bailey, 2000).

### *Theme 2: Constructivism to conscientization*

For a number of the participants in this study, one of the primary purposes of critical pedagogy is to enable the students they teach to construct their own knowledge and understanding. These participants position the student at the centre of learning process. They foreground pedagogies that move beyond ‘banking’ education (Freire, 1970). The verbs used in the following statements, (eg ‘thinking’, ‘exploring’, ‘challenging’, ‘questioning’) are consistent

with constructivist teaching where students maintain an active role in the process of making meaning and knowledge construction.

Advocacy for constructivism is reflected in comments by Liam who teaches in a way that requires, “*students to come up with the answers rather than just feeding the students teacher directed teaching*” (Interview 2). Holly aligns critical pedagogy with constructivist principles as she, “*encourages students to think and not just give them information...*” (Interview 2).

In contrast, Jamie proposes a critical pedagogy that shifts from constructivism to something more akin to Freire’s (1970) notion of conscientization. Through his own teaching Jamie states that he wants students to, “*question their own beliefs. To challenge themselves and question other’s beliefs... I would always my students not just to read anything they read and to accept it*” (Interview 2). Shane and George show a similar understanding of critical pedagogy. Shane advocates for making students conscious of how their values and beliefs may influence their understanding stating that, “[I want them to explore] *how their values and beliefs around an issue or subject can affect how they think about it.*” (Interview 2). George asserts that he wants to, “*deconstruct that power that I’ve got as a teacher.. I want to allow the students to make their own decision and try to get them to rid their own bias through exploring dominant discourses, like ‘what is advantaged?’ ‘What is the normal view?’ and [I] try and challenge it.* (Interview 2)

### *Theme 3: Uncertainty of understanding*

More than half of the participants in this study profess to be unclear as to what critical pedagogy is. These students claim that critical pedagogy has been discussed throughout the four years of the programme but it has never defined. At the first interview William was most adamant that he did not understand the term ‘critical pedagogy’,

*I find it quite a hazy topic to still talk about...here we are sitting in a course [programme] that has the philosophy that we all graduate as critical thinkers and critical pedagogue. And we get to fourth year and Bob<sup>60</sup> asks us, ‘so what are some examples of what a critical pedagogue is?’ and all of us are sitting there going oh, oh....(Focus Group Interview 1)*

George stated that he was familiar with ‘pedagogy’ and he had some understanding of ‘criticality’ but, “*the mixture of the two is still a bit unclear in my mind*” (Interview 2). When Margaret was asked to define critical pedagogy, she proposed that, “*I don’t know if I would be able to pinpoint exactly*” (Interview 2). Tash suggested that perhaps she was let down in her PETE programme as she has, “*struggled with that [understanding critical pedagogy]... because no one has given me, ‘this is the definition’ of it*” (Interview 2). Jess was somewhat more optimistic suggesting that, “*I think I have a developing understanding of critical pedagogy. I think that it will become clearer as I get into teaching with my own classes...*” (Interview 2). Only Richard seemed to allude to the possibility that the practise of critical pedagogy may be context specific and

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<sup>60</sup> Pseudonym for one of the BPE lecturers

unique to each individual. He suggests that, “*I think it’s different for everyone, different person. Everyone’s got their understanding of what they think it is*” (Interview 2).

## Discussion and conclusions

This chapter is an attempt to gain insight into the influence of a four year critical PETE programme on students’ understanding of critical pedagogy. The findings demonstrate that each PETE student has constructed a different understanding with many remaining uncertain about what critical pedagogy is and how they could enact it in their own classrooms. Some of the students are able to describe a perspective on teaching that is consistent with critical pedagogies.

This engagement by some of the participants with the language of critical pedagogy, such as ‘deconstruction’, ‘equity’, ‘critical reflection’, and ‘exploring values and beliefs’, provides some evidence that exposure to critical pedagogies in the BPE programme has advanced the participants ability to engage with concepts from critical theory and helped to overcome the barrier of not understanding (Kincheloe, 2007; Macedo, 2009). Three of the participants espoused the importance of critical reflection, a process described by Giroux (1981) as looking at how their history and life experiences influence their own beliefs and values. George recognizes the importance of deconstructing his own power as a teacher to encourage students to learn to, “perceive social, political and economic contradictions” (Freire, 1970, p. 19). Tash shows a concern for issues of gender equity (Dewar, 1990; Tinning, 1985). Shane and Jamie highlight a critical pedagogy that makes students aware of how their values and beliefs influence their understanding.

In contrast, this study suggests that, for many students, the critical pedagogies in the BPE may have gone unnoticed or dismissed as ‘quirky’ teaching approaches of individual teacher educators. The sense that students have made from the BPE programme may be a result of learning *through* critical pedagogies without enough concurrent learning *about* critical theory and critical pedagogy.

William states that it was only in the last year that, “...*a definition of critical pedagogy was explained.....once it was explained to us, we could actually see how the classes we had done over the last three and a half years had actually related to that*” (Interview 2).

William’s initial comment (Interview 1) suggests that he had almost negotiated the four year BPE programme without being taught about critical pedagogies. This second statement reveals a growing awareness that he had been unaware and unable to identify critical teaching practices, despite having encountered them throughout the degree.

Another telling comment came from Tash. Late in her final interview she was shown a list of recognised critical pedagogies. Her comment, “*Are these honestly critical pedagogies? That is not what I thought they were*” (Tash, Interview 2), reinforces the suggestion that some BPE students are not cognisant that they are exposed to critical pedagogies in BPE courses, nor do they have the language to articulate what ITEs are doing, or what they themselves could do in the name of critical pedagogy.

The participants in this study may have been unaware of the critical pedagogies in the BPE programme as they didn’t have the theoretical understanding to identify and recognize them. The participants may not have seen critical approaches in their BPE courses because they don’t

know what to look for. Given that William and many other students profess to still being unclear what critical pedagogy is (theme 4), this uncertainty may signal a need to teach not only through critical pedagogies but about critical pedagogies.

While it is also alluring to conclude that the BPE programme needs to better prepare students with a more comprehensive understanding of critical theory and critical teaching methods that can be applied in school HPE classes, I am reticent to make this suggestion. A growing number of PETE scholars emphasise that socially-critical ITEs must develop a commitment to critical pedagogy rather than simply understanding critical pedagogy (Muros Ruiz & Fernandez-Balboa, 2005; Tinning, 2012). Critical pedagogy cannot be reduced to a paint-by-numbers teaching method. Critical pedagogy must always be in the continuous process of development and recontextualization and not reduced to ‘one’ “narrow set of prescriptive practices” (Breuing, 2011, p. 5).

This study reinforces Tinning’s (2002) assertion that different students will make different sense of their experiences in a critical PETE programme. As there is little in the way of literature to make comparisons with, it is difficult as an advocate of critical education, to determine whether I should be optimistic because of the small number of students who seem to embody the zeitgeist of critical pedagogy, or to lament the uncertainty and the narrow interpretations. This study demonstrates a growing knowledge of critical pedagogy amongst the participants, although I am less certain how they *think* and *feel* about the importance of education and social justice (Tinning, 2012). I am equally uncertain of how resilient any emerging social justice agendas outside of the BPE programme context.

Critical pedagogy requires teachers to name, reflect and act critically on the world (Wink, 2005). Through ITE, prospective teachers can learn about inequity, oppression, and disadvantage. They can study politics and education and critical theories. They can observe, name, and model critical practices observed within the supportive discourse community of their ITE programme (Ovens & Tinning, 2009). Ultimately though, it the ITE students themselves who must commit to political actions in their classrooms, in the hopes of making a positive difference for the students they teach.

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## Using a theory of implementation to determine teachers' ability to implement an innovative science curriculum

*Michèle Stears & Nokuthula Mpanza*

University of KwaZulu-Natal

The birth of democracy in South Africa brought transformation to education. The implementation of Curriculum 2005 (C2005), a sophisticated form of Outcome Based Education (OBE) was introduced in an effort to break from a past education system characterised by a teacher-centred approach to education. From the onset it was evident that teachers had difficulties in implementing this curriculum that was so radically different from any curriculum they had been exposed to previously.

Owing to the challenges in its implementation, C2005 was streamlined and reviewed in the Revised National Curriculum Statement (RNCS) in 2002. However, this streamlining of the curriculum was not accompanied by substantive professional development programmes. Jansen (1998) is of the view that the success of the curriculum was dependent on trained and retrained teachers, radically new approaches to assessment, as well as classroom organisation appropriate to monitoring and assessment.

It is against this background that a number of researchers have attempted to determine how effectively the curriculum is interpreted and implemented. The purpose of this study is to explore the ways in which teachers implement the Natural Science (NS) curriculum of the RNCS (2002). The research questions that drove the research were: How does a natural science teacher implement an innovative natural science curriculum and why does she implement it in the way she does?

### Literature review

Curriculum change is a global phenomenon and South African teachers are not the only educators affected by curriculum change. Both developed and developing countries review their

curricula regularly to meet their various needs. Unfortunately, in the South African context, change has also been driven by political imperatives with no connection to the realities of classroom life (Fiske & Ladd, 2004). While C2005 was introduced to remove inequality, it also presented a major paradigm shift. Beare (2001) agrees that such a paradigm shift was necessary as it ensures that schools develop students who will be able to function in a changed social environment such as the post-apartheid South African environment. With regard to the Natural Sciences, the paradigm shift referred to above involved a change of view of science as a content-based subject which is teacher-centred, to an approach that is learner-centred.

Teachers are at the centre of curriculum change and it is important to involve them in curriculum discussions. Policy makers seldom consult teachers directly when changes are made to curricula. The result is that teachers do not feel that they are part of the decision-making process and this leads to them feeling inadequate and incapable (Kelly, 1994). Hargreaves' (2005) is of the view that large-scale legislated education change persists in failing to win credibility from and commitment among most teachers responsible for implementing it.

An important factor which influences a teacher's implementation of a curriculum is their science content knowledge. Alonzo (2002) maintains that teachers with a stronger content knowledge can develop a variety of questions to extract the learners' understanding about a particular aspect. Sanders *et al.* (1993) attest that teachers with weak content knowledge struggle to engage learners in the development of events for conceptual progression.

A further aspect that needs to be considered is that of pedagogical content knowledge. Shulman (1986) introduced PCK to address the dichotomy that existed between subject matter and pedagogy. PCK enables the teacher to select appropriate teaching strategies for particular topics. As connections are made between known concepts and using new strategies, learning takes place and the body of knowledge grows. Various authors (Loughran, Berry & Mulhall, 2006; Shulman, 1986;) claim that PCK concerns itself with the representation and formulation of concepts, pedagogical techniques and knowledge of what makes concepts difficult or easy to learn, knowledge of students' prior knowledge and theories of epistemology. This makes it different from the general pedagogical knowledge shared by teachers across disciplines. A teacher's ability to include practical work in her teaching is a further aspect that determines how she implements a natural science curriculum. Good quality practical work can engage learners, assist in developing crucial skills and help them understand the process of scientific investigation and concepts (Woodley, 2009). Abrahams and Millar (2008) are of the view that some learners learn best when they see things happen and contend that practical work promotes a link between what learners observe and the ideas developed.

### Theoretical framework

Rogan and Grayson (2003) attempted to determine how C2005 was implemented by investigating a number of aspects which could affect the way an innovative curriculum was implemented in a developing country such as South Africa. As Rogan and Grayson (2003) adopted a 'whole school' approach they explored a number of areas which could affect curriculum implementation. In the development of a theory of curriculum implementation they were able to conceptualise a framework that allowed them to explore a number of constructs. These constructs are: capacity to innovate which attempts to understand the

teachers' capacity to implement a new science curriculum, outside influences which the teacher has no control over and profile of implementation which attempts to express the extent to which the aspirations of the curriculum are implemented in classroom practice. As this study focused only on teachers and not on the school environment, the theory was adapted to focus only on aspects related to teachers. The framework uses four levels ranging from teacher-centred to learner-centred approaches to determine teachers' capacity to implement a science curriculum.

This study is informed by Rogan and Grayson's (2003) theory of curriculum implementation as it attempts to demonstrate how the theory may be used to identify the way in which teachers implement the curriculum. According to Rogan (2007), the chosen theoretical framework is relevant to curriculum implementation in science education in the context of a developing country. Figure 1 shows how the framework was adapted to focus only on those constructs which pertained directly to the teacher.

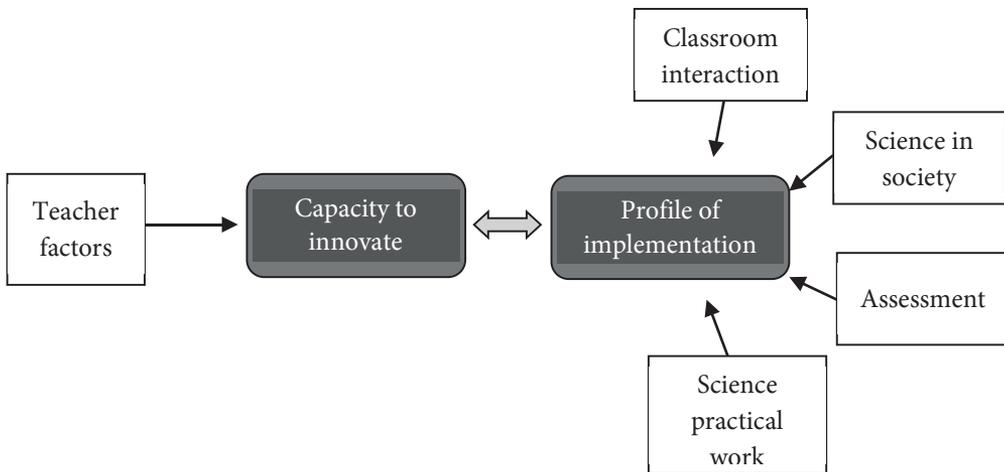


Figure 1. Rogan and Grayson's (2003) model adapted for this study

Rogan and Grayson's (2003) model may be used to place teachers at different levels depending on their level of implementation.

### ***Capacity to innovate***

The capacity to innovate is determined by the sub-construct i.e. teacher factors.

*Teacher factors:* These refer to the teachers' philosophy of teaching science, as well as the ability to teach depending on qualifications, experience, professional development and teachers' science content and pedagogical content knowledge.

### ***Implementation factors***

The development of a profile of how the curriculum is implemented will contribute to their classification into the different implementation levels.

*Classroom interaction:* This concerns itself with what the teacher does and the learners do during the development of the lesson.

*Science practical work:* This sub-construct focuses on the degree to which the teacher facilitates an inquiry-based approach and promotes critical thinking and the ability to participate in decision-making in an informed way (DoE, 2002).

*The incorporation of science in society:* The natural science curriculum in C2005 places emphasis on the relationship between science and society. Learners should be exposed to how science is influenced by human uncertainties, interests, judgments and values (Abd-El-Khalick & Lederman, 2000). It is important for learners to be aware of both the advantages and limitations of science and technology.

*Assessment:* New approaches require different assessment strategies. In this study assessment was only noted as part of lesson planning. It was evaluated in terms of appropriateness for the grade and diversity of assessment strategies.

## Methodology

This study is located within an interpretive paradigm as we wished to explore the various factors which influence teachers' implementation of a natural science curriculum. Such implementation is influenced by the social reality in which teachers find themselves (Cohen, Manion & Morrison, 2007). We have applied a qualitative approach as the study explores the lived experiences of a teacher with regard to the natural science curriculum. We have chosen to report on the implementation of the natural science curriculum of one teacher as the focus of the chapter is the use of the theory of implementation. In the larger study three teachers participated in the project. As a sample of one, we were able to study her perceptions and understandings which led to her implementation of the curriculum in a particular way. Our sampling method was purposeful as we selected a grade four teacher who teaches Natural Science. We selected grade four as it is the entrance grade into the Intermediate Phase where Natural Science is taught as a separate subject for the first time. The participant came from a school located in a cluster of the Umbumbulu district of KwaZulu-Natal, a province in South Africa.

### *Data collection methods*

A questionnaire, semi-structured interviews and classroom observation were employed to collect data.

#### Questionnaire

Very few questions in the questionnaire were closed and this made the questionnaire a suitable instrument for qualitative data analysis. Section A produced biographical data while Sections B and C were informed by the sub-constructs from the capacity to innovate and profile of implementation.

#### Semi-structured interviews

Semi-structured interviews allowed us to obtain deeper meaning, especially with regard to the class observations and questionnaire responses. The transcript was returned to the participant to check for any omissions to verify data and to make corrections if necessary.

#### Observations

After the pre-observation interviews, one researcher observed a lesson of 60 minutes duration.

This allowed us to explore what goes on in the classroom during the lesson and witness and receive first-hand information of the way in which the teacher implemented the curriculum. A tape recorder was used to capture all the information from beginning to end. The questions developed for classroom observation were informed by the sub-constructs of the profile of implementation as given in the theoretical framework.

Trustworthiness of the data was ensured by triangulation as well as member-checking. Confidentiality was maintained at all costs and the participant's anonymity was ensured as pseudonyms were given to both the school and the participant. Ethical clearance was obtained from both the provincial department of education and the university to which the researchers are aligned (Ethical clearance number: 2/4/8/82).

#### Data analysis

In the questionnaire, Section A required biographical information of the teacher such as experience, age, qualifications, content and pedagogic knowledge. The teacher was then observed against the background of this information to determine her ability to implement the NS curriculum. The rest of the questionnaire was aligned with one sub-construct under Capacity to innovate (teacher factors) and the sub-constructs included under the Profile of Implementation to determine how each teacher performs in classroom practice. The data obtained in this way were then classified and categorised according the various sub-constructs in an effort to condense the collected information.

#### Findings and discussion

The findings with regard to the way in which one teacher, Thulile implements the natural science curriculum are presented.

#### *Teacher factors*

Table 1 presents information with regard to the Thulile's biography. Thulile started teaching without the basic teaching qualification and accumulated almost all her teaching experience without having obtained formal pedagogic knowledge. She enrolled and completed the National Professional Diploma in Education (NPDE) as a part-time student with majors in Life Orientation and in Learner Support. NPDE was an opportunity provided to South African un- and under-qualified practising teachers to improve the quality of teaching and learning. Thulile was an un-qualified teacher with no professional teaching qualification for 15 years. When she did obtain a professional qualification it was not in science and neither did the course have any science subject. She explained, *I specialised in Foundation Phase because I was teaching those classes. I then did LO.*

Immediately after completing her diploma, she was requested to teach NS. She is only in her third year of teaching Grade Four. She confirmed that she needed to work hard in science because she was last exposed to it when she was at school, with matric biology as her highest academic qualification in a science.

Table1. Thulile's Biography

Participants	Qualification					Teaching experience in years		Experience in teaching science in years		Age	
	Matric science subjects	Professional certificate	Year obtained	College science subjects and levels	University science course and levels						
Thulile	Biology	NPDE	2007	0	0	11-20	>20	<5	5-10	36-50	>50

### Profile of implementation

This construct is concerned with the factors that influence implementation in the classroom.

#### Classroom interaction

This sub-construct focuses on the interactions between teacher and learners and between learners themselves during teaching and learning. Thulile's lesson was presented according to her lesson plan. However the introduction she gave to learners left them confused and puzzled. The topic was "phases of liquids" and she said; *This is similar to what the baby does, the baby sits, crawls and stands to walk...* Learners were attentive but quiet. Thulile then communicated in IsiZulu hoping to engage the learners with the topic and asked: *Asuke enjani amanzi menjalo? ... no answer...OK! ... the second one ice phase or...?*

Thulile kept on asking questions as a way of introducing learners to concepts related to the different processes that were leading to the change of water from one state to the other. They participated actively even when they were providing incorrect answers. The teacher posed the question of what was happening to the ice in heat, and the learners answered that the ice boiled. There was no comment or correction from the teacher. She thought learners would best understand the "phases of liquid" if they had the knowledge of the different stages in the development of a new born baby. When asked what she meant by this she simply said: *"I wanted them to see that changing from ice to water to steam is like those stages of development."* She then introduced the lesson by asking what the colour of water was which she never corrected when learners gave it as 'white' but concluded by stating that in the higher grades they would learn what colourless meant. She proceeded to teaching and learning activities where new concepts were explained and defined before embarking on the practical demonstration but she had difficulties with the concepts used. Some concepts on the chalkboard were abbreviated or spelt incorrectly. Books were not available for use and the teacher had no other resources except calling out the information and writing on the board.

#### Science practical work

Thulile used the demonstration method in an attempt to develop concepts they had discussed in class. She tried to engage them in practical work as she had indicated in the questionnaire. She successfully managed to help them identify the different parts of the apparatus they were

going to use for the demonstration together with their functions. Thulile conducted the demonstration of the process of changing water from one state to the other and requested the different groups to observe, but the aim was not stated. Questions were asked as the lesson proceeded and learners were expected to answer. Learners were not exposed to writing a scientific report or at least to describe their observations and during the interview Thulile stated: *“I left it because it was going to waste time.”* The response contradicted what she had indicated in the questionnaire. It further came up that she had never had any exposure to practical work even during her academic study. She then exclaimed: *It could have been better if I had specialised in science for my NPDE because I have a challenge with many things but I will learn along the way.*

#### Science in society

Thulile tried to make learners think about how and where they experience the processes of freezing and evaporation in their everyday life. They came up with freezing juice to ‘*isiqeda*’ and were unable to respond to evaporation. There were no comments again from Thulile and no answer was given to them. When asked during the interview why she never gave learners any exemplar, she explained: *Eh... the truth is I got confused myself and could not find the paper where I had written a number of examples.*

#### Assessment

In affirmation of what Thulile had indicated in the questionnaire, she gave her learners short closed questions as the demonstration was conducted. Questions were given verbally and learners had to write out answers after they had discussed the question as a group. These were discussed and marked and returned to the groups or presented orally by a chosen member of the group and corrected. At the end of the lesson five questions were squeezed in the available space of the disorganised chalk board and the group that finished first with all correct answers was to be given R2. She indicated on her lesson plan that learners would do an activity. When she was asked to explain what she meant by activity, she stated that it meant few questions relating to the content studied to be written as a class activity.

Rogan and Grayson’s guidelines are also adopted for the profile of implementation in placing Thulile at different levels for different constructs. The profile of implementation table (Table 2) presents the four sub-constructs discussed and enabled us to create meaning and understanding of the measure to which she is able to put the curriculum into practice.

By using the four levels constructed by Rogan and Grayson, we were able to place Thulile with regard to her profile of implementation. We found that she was at level one for all four sub-constructs.

The findings show that Thulile operates at level one with regard to all the constructs investigated. Sound content knowledge provides the teacher with the expertise to simplify and contextualise science concepts so that the teacher is able to address misconceptions, learner difficulty and misapplications identified during baseline assessment (Ball, 2000). Thulile did not have this ability. Without the necessary content knowledge it is to be expected that Thulile’s PCK would be lacking as well. While she may have some pedagogic knowledge, without science content knowledge, there can be no PCK (Trowbridge, Bybee & Powell, 2004).

Table 2: Thulile's profile of implementation

Level	Classroom interaction	Science practical work	Science in society	Assessment
1	<p>The definitions of some concepts were incorrect. Notes were very scanty and all over the chalk board.</p> <p>She engaged learners with questions based on the demonstration conducted. Learners were attentive because they were promised incentives but there were no questions raised.</p>	She used a demonstration to illustrate different concepts.	Thulile referred to everyday life, e.g. the freezing of ice lollies in the refrigerator	Verbal and written questions were given but they were mostly of recall type. Assessment was done in groups
2				
3				
4				

The fact that Thulile had no formal qualification in science resulted in her lack of experience of practical activities and investigative processes, and this made it very difficult for her to adopt the strategies prescribed in the curriculum. While Fisher (2010) suggests that primary science teachers should improvise ways in which they to engage their learners in practical work when resources are scarce, Thulile's lack of science knowledge does not permit this.

Assessment also presented a problem as Thulile interpreted the different strategies differently as well as the purpose of assessment. She did not have the expertise to implement the complex types of assessment strategies required by the curriculum. In C2005 understanding of the assessment standards with regard to the levels at which questions ought to be set per grade is essential. Without this understanding, assessment becomes a challenge

## Conclusion

Curriculum 2005 is a curriculum that is very different to any curriculum South African teachers experienced in their own schooling or during their earlier training. To expect teachers to embrace a system that is so radically different to their earlier experiences is unrealistic. While this research presents a case study of one teacher in which the findings cannot be generalised, we do believe that many teachers experience teaching NS in the same way as Thulile.

Rogan and Grayson's (2003) theory of implementation proposes a number of factors that need to be considered when implementing a curriculum that is very different to any existing curriculum. The first important consideration is that any innovation should be just ahead of existing practice. Implementation should occur in manageable steps. Furthermore all role players need to re-conceptualise the intended changes in their own terms and context – what

applies to one context may not work in another. It also needs to be said that changing teaching and learning is a change of culture not a technical matter. Teachers need to buy into curriculum implementation and be willing to change their own beliefs and practices.

To enable a teacher such as Thulile to move from level one to higher levels, requires her to improve her capacity and enrich her profile of implementation. This can only be achieved through appropriate and continuous support of curriculum implementation.

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## Power posing in education: Does Wonder Woman give student teachers the power to deal with classroom management problems?

*Elke Struyf & Luk Smits*

University of Antwerp

In Belgium, one out of five beginning teachers quit their jobs during the first five years of teaching (Flemish Ministry of Education, 2013). In a study on mentoring beginning teachers, Strong and Baron (2004) also mention a significant dropout rate. Hong (2012) concludes that teachers that drop out experience the same challenges as their colleagues who keep on teaching, such as challenges with regard to classroom management and effective execution of their lessons, but have lower self-efficacy. Managing problems and lack of skills in effective classroom management are mentioned as factors that hinder professional success (Evertson & Weinstein, 2006; Fideler & Haselkorn, 1999). From the students' point of view, Marzano, Marzano, and Pickering (2003) conclude that classroom management is the single variable that has the most impact on student learning, while beginning teachers report classroom management as their biggest concern (Jones, 2006).

Looking at student teachers' classroom management competences, one might wonder why some students seem to have "it", while others struggle to survive each lesson. Buchert, Laws, Apperson, and Bregman (2008) suggest that students form lasting impressions about their teachers within the first two weeks of classes. In social psychology, numerous studies indicate that the initial judgments perceivers make of the people with whom they interact have an influence on the course and outcome of social interactions (Greenlees, Buscombe, Thelwell, Holder, & Rimmer, 2005). The nonverbal behavior a teacher displays while making that first impression is therefore a powerful tool that affects the course of not only a single lesson but also the lessons that follow (Mackay, 2006). In searching for the "it" that causes some student teachers to reach for the sky and others to sink to the bottom, this study explores student teachers' nonverbal behavior, related to their self-efficacy concerning classroom management.

Inspired by Cuddy (2012), a focus is set on powerful poses, introducing “power posing” in an educational setting.

## Theoretical background

In literature, nonverbal behavior and nonverbal communication are two concepts that are wrongly used as synonyms (Krauss, Chen, & Chawla, 1996). According to Knapp and Hall (2010), research on nonverbal communication is focused on three aspects: context, physical characteristics of communicators, and behaviors showed by communicators. Regarding this last aspect, powerful nonverbal behavior is now discussed, both in general and in the context of an educational setting.

Carney, Hall, and Smith LeBeau (2005) relate nonverbal behavior to high and low social power, referring to either a characteristic (e.g. dominance) or a role (e.g. function or rank), associating the following types of nonverbal behavior with high power: touching others, eye contact, facial expression (e.g. nodding), little self-touching, open posture, expressive movements, erect posture, and smooth and confident speech. Humans express power by taking on open, expansive postures or high power poses and express powerlessness through closed, contractive poses (Carney, Cuddy, & Yap, 2010). Carney et al. (2010) declare that it is possible to feel more powerful in a stressful situation after conducting a high power pose for two minutes. In contrast to low power posers, maintaining an open, expansive posture with open limbs makes high power posers feel more powerful and able to take risks. Levels of testosterone rise, increasing dominant behavior, and levels of cortisol reduce, causing less stress (Carney et al., 2010).

Cuddy, Carney, and Wilmuth (2012) conducted an experiment where, in preparation for a job interview, 61 individuals had to maintain a high or low power pose for five minutes. The high power pose is described as standing with the legs apart, holding the hands on the hips (akimbo). The low power pose is described as standing with the legs crossed and hands crossed over the hips. High power posers performed better and were more likely to be chosen for hire; this effect was mediated by the individual’s presence, not by his/her speech content. Power posing had no effect on body posture during the social evaluation (i.e. the job interview itself), thus revealing a relationship between preparatory nonverbal behavior and subsequent performance, and highlighting preparatory power posing as a simple performance boosting tool (Cuddy et al., 2012). Cuddy (2012) states it is best to do power posing in private (alone), in a place where it is possible to spare some time. Two minutes of power posing is sufficient to feel more powerful. Inspired by Cuddy (2012), high power poses have been given names, such as The Victor, Wonder Woman, The Villain, The Subway Guy and The CEO (Figure 1).

According to Evertson and Weinstein (2006), a positive teacher-child relationship is at the core of classroom management. Wubbels, Brekelmans, den Brok, and van Tartwijk (2006) describe this relationship in their model for interpersonal teacher behavior, positioning teachers in two dimensions: proximity (opposition to cooperation) and influence (dominance to submission). Whether a teacher is dominant or submissive towards a student depends on five types of nonverbal behavior (van Tartwijk, 1993): eye contact, use of space, facial expression, use of voice, and body posture. Combining a clear and loud voice with frequent use of eye contact portrays dominant behavior. Being close to students while bending over can be

interpreted as submissive (Wubbels et al., 2006). Angry and neutral facial expressions and raising the voice have a negative influence on proximity. Smiling regularly positions a teacher closer to students.

Teachers' self-efficacy also influences this relationship. Teachers who believe they can make a difference are more likely to interact with students, producing more effort and better achieving students (Midgley, Feldlaufer, & Eccles, 1989).

### THE POSES:

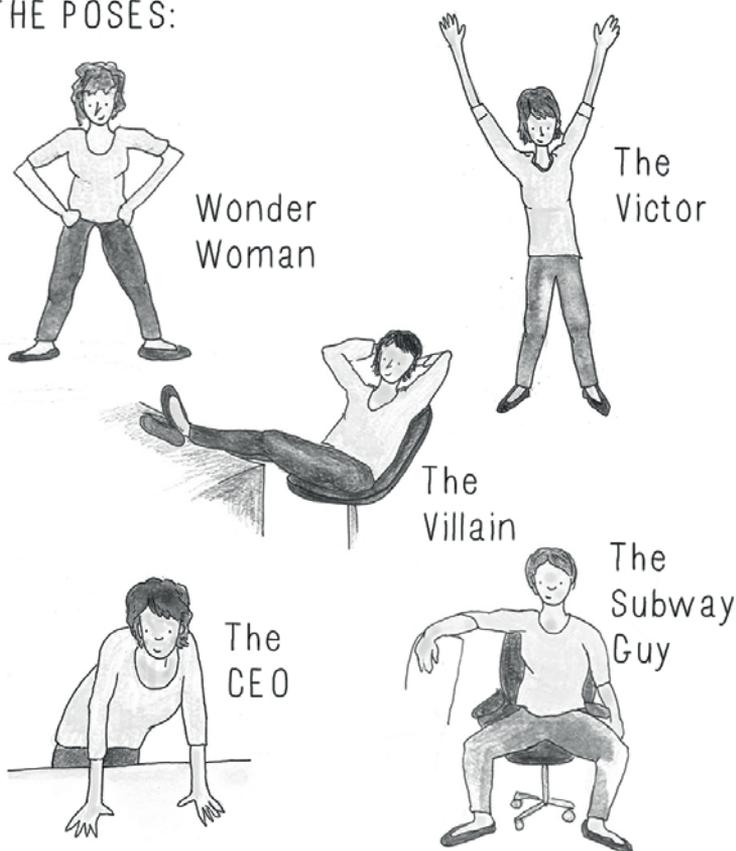


Figure 1. Names given to high power poses  
Used with permission from Small Answers  
(<http://smallanswers.us/wp-content/uploads/2014/01/allposes2.jpg>)

### Research design

Power posing is a relatively new concept, lacking a theoretical base in an educational context. This study aims to explore the use of power posing as a powerful nonverbal behavior in education. Two studies were conducted in two teacher-training programs (TTP1 and TTP2). Participants were student teachers doing their internships. Data was gathered simultaneously to meet the study's time limits. Study 1 examines powerful nonverbal behavior prior to and during teaching of student teachers with either high or low self-efficacy. Study 2 is an

explorative intervention study that introduces student teachers to power posing and monitors their experiences with power posing with regard to five characteristics: type of power posing (private or public), applicability of the high power poses, place, perceived effects, and facilitating or hindering factors for power posing.

### *Study 1*

In order to use self-efficacy as a criterion for researching nonverbal behavior, student teachers in their second year of teacher training were chosen because of the teaching experience they had already gained in their first year. Out of 65 student teachers (TTP1), eight students (four high self-efficacy, four low self-efficacy) were selected using a combined scale based on the Teacher Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001) and the Teacher Concerns Questionnaire (TCQ; George, 1978), both proven to be reliable and valid. The selected students were observed twice, before and during two of their lessons, using a structured observation scheme. The observation instrument contains five main categories (distance, use of voice, gestures, position of head, and posture) that are subdivided based on the literature on powerful nonverbal behavior. The scheme was piloted three times, in order to avoid overlapping (Cohen & Morrison, 2007) and increase reliability. Completed schemes were combined with the mentors' input, gathered using the questionnaire for interpersonal teacher behavior (Wubbels et al., 2006) to make up a student's profile, which was analyzed using NVivo.

### *Study 2*

Six student teachers who failed their internships in the second year of teacher training (TTP2) were introduced to power posing in a one-hour course, three days before the start of their two-week internships. Power posing was introduced to students without mentioning any possible positive effects. Students were asked to perform power poses minimal four times (2 private and 2 public) during their internships and fill in a logbook. A logbook is considered to be a data collection method that generates less bias in descriptions of experiences than methods that gather data at a later time (Sheble & Wildemuth, 2009). Instructions for use and a filled-in example were available to students (Corti, 1993).

For reasons of triangulation, personalized semi-structured interviews were conducted within the week following the internships, limiting the time between experience and reflection. Interviews were taped and transcribed verbatim. Using NVivo, a coding scheme based on the five characteristics of power posing was used to describe the students' experiences of power posing.

## Results

### *Study 1*

Overall, Study 1 reveals that student teachers already use a wide range of powerful nonverbal behaviors. Student teachers with high self-efficacy more frequently display powerful nonverbal behaviors than student teachers with low self-efficacy.

Combining a clear and loud voice with frequent use of eye contact, student teachers with high self-efficacy portray more dominant behavior during their lessons. Student teachers who make little use of these dominant behaviors are the ones labeled submissive by their mentors.

Furthermore, student teachers with low self-efficacy tend to keep their heads down, showing submission. Student teachers with high self-efficacy all keep their heads up, showing dominance. Smiling and nodding as a signal of confirmation are two nonverbal behaviors student teachers with high self-efficacy use to express themselves. There is no difference between students with either high or low self-efficacy in terms of the observed distance between student teachers and their students. Both groups stay in front of their classes while giving instructions to the whole group and move around the classroom when students work individually. Prior to the start of a lesson, the same pattern returns. Student teachers with high self-efficacy use more eye contact and are more expressive when in contact with fellow student teachers. When interacting with a mentor, this behavior weakens.

Posture is a variable on which both groups differ in three ways: self-touching, open or closed posture, and gestures. Student teachers with high self-efficacy touch themselves less frequently during a lesson, while portraying a more open posture. Prior to their lessons, this difference is less distinct. Before the start of a lesson both groups frequently show self-touching and close their postures, e.g. by crossing their arms. Contrary to self-touching and open or closed posture, the use of gestures remained the same before and during class, with gestures being more frequently used by student teachers with high self-efficacy.

Study 1 also showed two postures spontaneously used by student teachers that can be labeled as a typical high or low power pose. One posture, observed prior to a lesson of a student teacher with high self-efficacy, is characterized by standing with the feet apart, arms akimbo. Cuddy (2012) labeled this pose as “Wonder Woman”. A typical low power pose was taken prior to a lesson by a student teacher with low self-efficacy, leaning over while sitting with one hand between the legs. This pose is very similar to a low power pose used in a previous experiment on power posing (Carney et al., 2010).

### *Study 2*

Although initially designed to be done in private, Study 2 shows that public power posing (in the presence of other people) is also possible if it doesn't draw too much attention. Student teachers stated that power poses such as The Victor and The Villain draw too much attention if performed in public. Therefore some student teachers combined poses to adapt them to the (public) situation they were in. A sitting combination, keeping legs wide such as in The Subway Guy, together with the hands on the neck, following the example of The Villain, is a new created pose. According to the student teachers, The Subway Guy is best suited for use in public. However, one female student teacher felt uneasy sitting with her legs wide, ruling this pose out for her. Most male student teachers in this study preferred the sitting poses, whether in private or public. Both female student teachers preferred a standing pose in private.

Power posing can be done in different places. In school, an empty classroom or the bathroom are the two most convenient places to do private power posing. However, in a school, the bathroom is frequented by a lot of people. Student teachers in this study indicated this to be the main reason for preferring an empty classroom to the bathroom. According to the student teachers, an empty classroom is also a good setting to get in the mood for the lesson to come. The staffroom is mentioned as a suitable place to do public power posing, provided that the open public poses fit within the school culture.

In this study, all but one student teacher stated that, after being introduced to power posing, they would continue using power posing in the future. They argued it would help them to become more relaxed in future situations where they are being judged and feel nervous. Also, some of the student teachers indicated they would explicitly think of power posing during teaching as a useful instrument to help them manage their class. Already feeling at ease was cited as the most important reason to skip power posing before the start of a lesson.

Student teachers reported that they felt more confident, more relaxed and less stressed after power posing, before entering the classroom. They also stated that power posing made them more aware of the poses they use in front of their students, e.g. when confronted with a difficult situation in class, it allows them to change their posture into a more powerful, open pose.

Some factors can facilitate or hinder successful power posing. Public power poses have to be acceptable, so they don't bother other people or provoke a reaction. During private power posing, it is important not to be disturbed. The lesson schedule is another factor that sometimes hinders power posing. Power posing is often done during free moments in between lessons. Lack of free moments or the practical organization of a lesson taking up the time that was intended for power posing are mentioned as reasons why power posing was hindered. To overcome this, student teachers also tried power posing at home, stretching the time between power posing and the teaching activity. One student teacher declared that power posing at home boosted his day, while another student teacher indicated that power posing at home had no effect because it was too long before the actual teaching.

Overall, Study 2 shows that power posing is perceived as a helpful instrument for student teachers to show more confidence in front of the classroom.

## Conclusion and discussion

Two studies were conducted to explore the nonverbal behavior of student teachers.

Study 1 shows no difference in powerful nonverbal behavior between student teachers prior to the teaching activity. However, during teaching, student teachers with high self-efficacy show more powerful nonverbal behavior than student teachers with low self-efficacy. "Can you fake it till you make it?" (Cuddy, 2012) summarizes the difference between student teachers with high or low self-efficacy. By taking on a different role during teaching than prior to the teaching, student teachers with high self-efficacy already seem to "fake" it. "Can you fake it till you become it?" is therefore the next question raised by Cuddy (2012). Power posing seems to be a useful instrument to raise the performance level of student teachers in this regard.

The results of Study 1, related to the student teachers' expressions and distance, can be interpreted within the context of the model for interpersonal teacher behavior (Wubbels et al., 2006). Smiling and nodding are two expressions that position teachers higher on the dimension of proximity. Although the student teachers did not all frequently use these expressions, all mentors labeled them as being close to their students. Wubbels et al. (2006) confirm these findings, classifying beginning teachers as tolerant (and insecure), and as being close to their students. Thus it is expected that student teachers will score highly on the dimension of proximity and this can be attributed to the distance between them and their students, rather than the expressions they show. The observed distance between this study's student teachers and their students confirms this idea, showing no difference between student teachers with

either high or low self-efficacy. Both groups stay in front of their classes while giving instructions to the whole group and move around the classroom when their students work individually.

As to the difference between powerful nonverbal behavior during interactions with students and interactions with mentors, a possible explanation can be found in the relationship between nonverbal behavior and social power (Carney et al., 2005). When interacting with their students, student teachers rank themselves higher than their students. In contrast, student teachers rank themselves lower when interacting with their mentors.

Study 2 explored the opportunities of power posing by raising awareness about the posture of student teachers prior to their teaching during their internships. It shows that student teachers perceive themselves to have more authority and are more relaxed and ready to start teaching after power posing. Alongside the effect of being more relaxed prior to teaching, student teachers also reported being able to adapt their posture when confronting difficult situations during teaching. In this way, power posing serves two purposes. However, the influence of power posing on posture during teaching is not in line with the findings of Cuddy et al. (2012), who report that power posing makes high power posers perform better, but doesn't change their posture during a social evaluation (e.g. job interview).

Having a good understanding of nonverbal behavior, situated within a student-teacher relationship, can support student teachers who are having problems with classroom management at the beginning of their career (Wubbels et al., 2006). Together with the insights of Study 1 about nonverbal behavior, the experiences of student teachers with power posing in Study 2 add to this understanding about nonverbal behavior.

In conclusion, the strengths and limitations of the study are summed up. The reliability of both Study 1 and 2 increased through triangulation. Existing instruments were chosen based on their proven validity and reliability. Newly created instruments were extensively tested. Instead of the parallel setup used in this study, a sequential research study, following the same student teachers during consecutive internships might have provided extra information to link student teachers' differences in perception of power posing to either high or low self-efficacy. The study's explorative design can serve as a starting point for future research on choice of power poses, and times and places to use power posing in an educational setting. Also gender differences can be explored more. Cesario and McDonald (2013) emphasize the importance of the interpersonal context when interpreting the effects of power posing. Future research could therefore also focus more on the role power posing plays in the relationship between student and teacher and its influence on classroom management over time (Wubbels et al., 2006).

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## Time out or a critical literacy approach: Is reading aloud still a valued approach in New Zealand classrooms?

*Helen Villers*

The University of Auckland

*We believe in the book. We believe in quieting the noise and listening to the stories. We believe in traveling far and wide between paper pages... We believe in surrounding ourselves with books long finished and books not yet read (Day, 2010).*

In this chapter, I investigate the changing forms, purposes and approaches to reading-aloud, within contemporary literacy pedagogy, and across the wide curriculum. I argue for the continued use of hard copy literature in our schools; picturebooks and novels, as powerful and effective resources for language, literacy and literature. While advocating for a balanced online/offline approach to school based literacies overall, I fly contemptuously in the face of the certain digital future our 21st century 'netizen' students will inherit as adults, by suggesting that when it comes to children's and young adult literature, books are best.

A three-pronged framework addresses three interconnected and critical perspectives, namely: (1) reading aloud as a critical approach within the literacy programme at all levels of the school, (2) reading aloud as central to a critical literacy pathway for socially just and inclusive outcomes at a time of tumultuous sociolinguistic and cultural change, (3) reading aloud as a way to compete with, and complement, the multimodal digital environment.

I conclude with a few pragmatic principles for children's and young adult literature in the classroom that might suggest a renewed enthusiasm for teachers and students to return to the hard copy section of the library.

While acknowledging the increasingly fast multimodal and deictic (Leu et al, 2013) reality for students today, I argue for a space in the day reserved for the book, a slow technology, to be read aloud at any level, and for any purpose across the wide curriculum. The discussion is

focussed on the role of read-alouds within classroom literacy pedagogies and is located at the intersection of sociocultural theories (Vygotsky, 1978) and critical literacy approaches (Friere, 1970). I draw on Radical Change theory in children's literature (Dresang, 2008; 2009) to defend the place of children's and young adult hand held picturebooks and novels within an era of digital alternatives and the fast technology upon which it is based.

Reading aloud to students as a critical approach within the literacy programme.

It is exactly three decades since Anderson, Heibert, Scott and Wilkinson's seminal report *Becoming a Nation of Readers* (1985) convinced teachers that reading aloud in the literacy programme was "the single most important activity for building the knowledge required for eventual success in reading" (p. 23). Elley (1983; 1985) in an experimental study conducted in Fiji, and applied throughout New Zealand as part of a nationwide professional development initiative (LARIC, Department of Education, 1984), argued that reading aloud provided a fast track to "a significant source of vocabulary acquisition whether or not the story is accompanied by teacher explanation of word meanings" (p. 174). While this confirmed the embedded beliefs and pedagogical practices of many New Zealand mainstream and bilingual teachers about the value of reading 'to' (Ministry of Education, 1985; 1994) a raft of further research evidence emerged to balance what was, at the time, a polarizing international debate about the theoretical and pedagogical value of a psycholinguistic and largely literature based 'whole language' approach to literacy learning versus a phonological processing (letter/sound) methodologies (Gough & Tunmer, 1986; Adams, 1990). Research indicated that a regular reading-aloud commitment might provide advantages for younger children in terms of listening comprehension (Morrow & Gambrell, 2002) vocabulary (Beck, McKeown & Kucan, 2002; Nagy, Anderson, & Herman, 1985) comprehension, vocabulary, text structure and features (Fisher, Flood, Frey & Lapp, 2004) phonemic awareness (Goswami & Bryant, 1990, Yopp (1995) language acquisition, (Elley, 1983) text structure, book language and concepts about print (Holdaway, 1979) motivation (Wigfield & Guthrie, 1997; Gambrell, Martin Palmer, Codling & Mazzoni, 1996) and for learners of new languages (Gibbons, 1992). Others saw significant advantage in establishing a space in the timetable for reading aloud to older students (Fisher, Flood, Frey & Lapp, 2004) and for the development of ideas and concepts across the curriculum (Serafini, 2010; 2012). This latter point is reiterated by the New Zealand Ministry of Education (2010) who suggest:

*Reading aloud from the best of children's literature should be a daily part of every classroom programme at all levels...Reading aloud is appropriate for all students, including those who already read accurately and fluently.*

Embedded in the enthusiasm for reading aloud however, exists a proviso. There is only moderate research evidence to indicate that reading aloud per se has a direct or immediate effect on reading test scores and student achievement (Scarborough & Dobrich, 1994, National Reading Panel, 2009) but factors such as motivation, interest and engagement (Wigfield & Guthrie, 1997), prompting, evaluating, expanding and repeating for dialogic reading, (Whitehurst 1999; Alexander, 2006) and text talk for words (Beck, McKeown & Kucan, 2002) appear to strengthen the impact of a well selected text, a clear sense of purpose, with smaller rather than large groups, by fluent, expressive readers (teachers) with opportunity for

discussion about content, structure and issues arising within an interactive context (Fisher, Flood, Frey & Lapp, 2004), and a focus on careful, focused efferent and aesthetic questioning and response (Rosenblatt, 2005), and all this taking place where there is a strong sense of intercultural communication and community (Newton, Yates, Shearn, & Nowitzki, 2010). It is argued that a balance of approaches, where students receive modelling and guided support, as well as the opportunity for independence, is most likely to work best (Pressley, Roehrig, Bogner, Raphael, Dolezal, 2002; Pressley & Allington, 2015). In this way, read-alouds may complement the more challenging aspects of decoding and comprehension for the student reader when the teacher provides a bridge from author to reader. Lewis (2001) points out that:

*‘For a story to exist there must be a successful text-to-reader direction of fit. Only when these two conditions are met does the story fully come into being...they must also learn how to make use of their knowledge of the world and of the codes and conventions of narrative employed by writers and illustrators and embedded in their texts. In ecological terms, the text – a specific combination of particular words and pictures – can only function, can only ‘live’ in the supportive context of a reader’s engaged and active attention” (p. 13)*

It is a given, however, that many parents, children and teachers intuit the value of a time in the day given over to the power of a good story (be it an oral retelling or from a picture book or novel) and time for relaxed attention to new vocabulary and interesting ideas, the sounds, cadence and rhythm of words, the warmth of the setting and the freedom to imagine, to create and to try out a different world, or even to be a different person for a while. This is surely the segue to a more critical position when the listener begins to understand perspective is relative, and that the identities, histories and practices that are ‘natural’ in one’s own life might begin to extend wildly beyond the self and the known and into the lives and times of others – real and imaginary people and places, lurking inside the covers of picture books and novels and waiting to be released for excitement, interest, scrutiny and understanding.

### Reading aloud as a pathway to critical literacy

It might be argued that the aforementioned conditions for reading aloud can, at any level of the school, provide a well scaffolded context for examining text in a critical manner. This means not merely ‘thinking critically’ about one’s own place and perspective, but engaging in a level of more detailed and critical analysis about text (Sandretto, 2011) and all the literary manifestations of power within it. This depends on teachers and students selecting literature where the gap between reader and writer and reader and reader (Rosenblatt, 2005) might be explored for content, ideas, concepts, connections and understandings. The read-aloud, within a relaxed and dialogically supportive classroom (Whitehurst, 1999; Kalantzis & Cope, 2012) might also foster a setting where all voices are heard, where ideologies might be challenged and transformative applications to ‘real life’ and the world outside of school, are forged.

*Critical literacy education focuses specifically on the role of language as a social practice and examines the role played by text and discourse in maintaining or transforming these orders. (Janks, 2014, p. 349)*

Critical literacy involves teachers and students in the close analysis of text. A carefully selected picture book or novel, read aloud, can demonstrate with considerable impact how

power (as represented in either fiction or non-fiction) operates to deflate or inspire, to humiliate or to respect, to alienate or empathise and, in the Freirean sense (1970), to oppress or liberate. This is startlingly apparent in children's literature, from young children's early reading of fairy tales and fantasy, to the darker and dystopian novels favoured by older students. Critical literacy has a natural home within a mindful, teacher scaffolded read-aloud setting. Through questioning and conversation, teachers might model the skills and strategies needed to decode and deconstruct the ideological interests that permeate all levels of culture, society, politics and, importantly, the very language used in the books we read (Youngs & Serafini, 2013). This focusses attention at once on the wave of changing demographics in New Zealand schools and the local-global forces of knowledge-making in the world today (Pahl & Rowsell, 2005) and demands an explicitly critical approach to the usual shared, guided and independent literacy practices of a conventional literacy curriculum (Sandretto, 2011). Indeed the New Zealand curriculum prescribes a critical approach for understanding how language works:

*Students learn to deconstruct and critically interrogate texts in order to understand the power of language to enrich and shape their own and others' lives (Ministry of Education, 2007, p18)*

Sandretto (2011) argues, however, that the statements in the curriculum are overly cautious, and suggests that guided approaches to reading (including read-alouds), require direct modelling, teaching and application of the metalanguage of critical literacy. Luke and Freebody's (1999) notion of the 'text analyst' as part of their four literate practices argue this requires regularly subjecting children's and young adult literature to a range of key questions, appropriate at both the primary and secondary school level of education, and irrespective of curriculum area: Who constructed this text? For whom? Whose perspective is valued? With what in mind? With what authority? How are we being positioned? Who is present or absent, privileged or marginalised? What is the effect on us, on them, on me? What actions do we need to take to address issues of inequity and promote social justice?

These are important questions to ask at a time when students' lives and experiences are directly and inextricably linked to, or indeed determined by, a world of social media, multimodal and multimedia experiences and fast changing new literacies. Young people's social and academic interests may be well beyond the reach of the curriculum but they will still dependent on the skills, strategies and critical framing of content taught and learned within it. The issue here is: where is the mediator, the moderator, the guide – the teacher in this? The impact of collaborative opportunities to learn powerful new words, share perspectives and viewpoints, to work together to problem solve and to share responsibility for social outcomes may reside, with most effect, in teacher led read-alouds and dialogic conversation. This is possible across curriculum content and pedagogy and in all learning areas (not just literacy but mathematics, social studies, science, health and technology). When students engage in unbounded virtual communities they require the skills to be cross cultural collaborators, critical inquirers and problem solvers. This might first and most effectively be modeled and shared within the comfort and safety of the read-aloud context. A model of intercultural communicative language teaching and learning proposed by Newton et al. (2010) has particular relevance: A setting is proposed with particular resonance for the read-aloud context, where language and culture is integrated, genuine conversation with a focus on exploratory and

reflective discussion about culture and language takes place, where comparison and connection to diverse others and contexts are made and where intercultural communicative competence is fostered to enhance linguistic and intercultural proficiencies. This form of deeply personalised face to face pedagogy is undoubtedly the tool kit Bruner (1990) describes as essential for language use, meaning making, reasoning and problem solving.

The advantage here is that novels and picture books, often jointly selected by teachers and students, then read aloud, can very adequately compete with digital story and all the affordances of personalised navigation, colour, moving imagery, spatial options, sound and interactivity this type of text provides. Books, with all the page based 'tricks' permitted by contemporary publication technologies provide not only for accessibility, portability and interactivity, they also trade on imaginative and challenging settings, contexts, plots, characters and motifs. This package of factors is likely to spark important creative and divergent responses, local and global perspectives and critical personal and interpersonal knowledge which in turn provides opportunity for words and for a whole world of human understanding and social action (Freire, 1970). In this, the book may still have a wider and more equitable socio-cultural reach than the expensive digital technologies of the privileged in the world today.

### Reading aloud as a way to compete with and complement the multimodal digital environment

This new age of digital text may require us to reconsider the power and the efficacy of read-alouds in general. The perception of the book as an outdated classroom artifact is at significant odds when compared with the multimodal, multiliteracies, new literacies revolution in the minds of many young people (Kalantzis & Cope, 2012, Leu et al, 2013). Healy (2008, p.1) points out:

*Many students in their everyday lives connect to an array of texts that bear little resemblance to the book, and to a vast digital network that transcends more traditional forms of text. These texts cross boundaries previously defined by genre and discipline.*

While teacher strategies and classroom approaches for the use of multimodal and digital texts continue to evolve (Anstey & Bull, 2006) our students move about fearlessly within the online environment, anticipating, or even creating, the next new technical or meaning making challenge with a confidence that leaves many teachers breathless. From an early age they understand the power and effect of receptive or productive visual images, design elements, semiotic codes and multimodal literacies, transcending and overtly challenging the book as staid, static and unexciting.

But is the online digital world a true substitute for reading out loud and story telling? Is it likely that the small children I see dancing to thumping, bare-boned rap music videos at kindergarten will be impressed by the gentle literary pace of Kenneth Graeme's *Wind In the Willows* when they arrive in the classroom of a teacher with a literary bias towards the classics? Is it possible that the power of imagined worlds in read aloud text can compete with the click of a button information available on demand to our students, irrespective of age, language, culture, social predilection or interest?

Through her jaded hero Nick, Gillian Flynn observes in her 2012 adult novel, 'Gone Girl', that;

*...there was nothing new to be discovered ever again... We were the first human beings who would never see anything for the first time. We stare at the wonders of the world, dull eyed, underwhelmed. Mona Lisa, the Pyramids, the Empire State Building. Jungle animals on attack, ancient icebergs collapsing, volcanoes erupting. I can't recall a single amazing thing I have seen firsthand that I didn't immediately reference to a movie or TV show (pp. 80-81).*

Even within the last three or four years our students have an ever widening range of fast digital options available to them. The world out there is omnipresent and immediately accessible, as Flynn suggests. Out there somewhere in the technology hubs and within the cyber worlds of the early adopters and innovators, beats the drum of Leu, Kinzer, Coiro, Castek, & Henry's (2013) notion of the deictic nature of new literacies; a position where literacy is changing at a speed that demands new literacy skills of each of us almost at a moment to moment basis. It is the infants who grasp the tablet before they can walk or run, who operate the television remote and know the words of by heart from downloaded music videos they have learned to access from mum or dad's phones while still in the baby seat in the back of the car.

While the digital world offers our children and young people the 'pre-seen' world, teachers in my research project still insist that it is the hand-held book, in the warmth of a community of learners that provides the opportunity for the development of the learners' inside worlds – the world of imagination and creativity, pathos and empathy.

Nostalgia for old stories gets in the way of the digital turn at times. Memories of story, told or read, from our childhoods are no buffer against the new tide that gathers our children up. O'Sullivan (2005) seriously laments what she terms 'cocacolonisation' of youth culture; an American multimedia conglomeration of fast food, fast technology and fast capitalism and fast text that creates a cultural monopoly around the 'utopian world of childhood' (p. 157). Global differences are homogenised and hybridised and, to put it in a contemporary context, films like *Frozen* or *Cinderella* or even *Mad Max* for older students rule. It makes an enormous difference to publishers, libraries, bookshops and schools that the status of children's and young adult's fiction is increasingly dependent on whether the film is made or not. The Whitcoulls "Top 50" books for children and young adults in New Zealand is testimony to this. Many 'good books' like *The Hunger Games*, *The fault in our stars*, and *Harry Potter* are quickly snaffled up and film rights bought before book readers have had time to read and review the book itself. Film is powerfully attractive and persuasive, and it is self evident that a good story told well will be of value in any media, but in terms of portability and spontaneity the 'wireless' book must win every time. This is contingent, however, on access to libraries and bookshops or, increasingly, to online purchasing of books. Schools and public libraries across the world face significant challenges to their budgets from the necessity, and arguably, the priority of digital technologies.

Dresang and McClelland (1999) and Dresang (2008) argue this point within a theoretical model comparing the accessibility, connectivity and interactivity of books with digital text, and with post modernism per se. Acknowledging the speed of multimedia and digital text as central to educative processes in our schools, they argue that the increasing sophistication of publication methods and text content can, and will, allow books to compete equitably with

digital text. Radical Change theories (Dresang, 2008; Dresang & Koh, 2009) and postmodernism (Bull & Anstey, 2002; Sandretto 2011) try to explain the dramatic changes in the presentation, themes, visual content and metafictional devices in children's picture books. Radical Change Theory has its roots firmly in the digital age, while postmodernism assists the theoretical and historical context, describing the changes that have occurred in philosophy, literature, art and music during the last half of the 20th century (Pantaleo, 2004) and trades, as Serafini (2012) suggests, on the 'obvious' – there have always been picture books and illustrated texts of one kind or another. The Radical Change picturebook, however, mixes words and images, perspectives and orientations, and demands vastly more of the reader/viewer than the simple word by word, left to right, once upon a time narratives of the mid 20th century. Lewis (2001) identifies the metafictional and intertextual features of these texts as possessing indeterminacy, fragmentation, decanonisation, irony, hybridisation, performance and participation. Radical Change texts "... assume a semiotic system that denotes a synergistic relationship between words and pictures..." (Dresang, 2008, p. 42). The very words and pictures these texts carry also assume a readership willing to explore, playfully and critically, the alternative voices and viewpoints, boundaries and existential possibilities of worlds and lives often far beyond the everyday reach of children and young adults, but assisted by the interactivity created in the often contestable gap between author, illustrator and reader. This calls, once again, for the read-aloud approach - the teacher as guide, mediator, discussant and as the orchestrator of dialogic processes as learners wrestle with the ideas and the ideology within text. Teachers need repertoires inclusive of the grammar of narrative text, the knowledge and skills to carry efferent and aesthetic responses (Rosenblatt, 2005) and deep understanding of multimodal literacies in order to enrich students' own critical and interpretative skills (Nodelman, 1996; Serafini, 2010).

Kress (2003) argues that we can no longer treat oral language and print text as the only means of representation or communication. Proficiency with written language alone cannot provide access to the meaning potential of radical change text. While this has significant implications for literacy education and for the use of children's and young adult literature in the classroom, we can still assist our students to articulate and interpret within and across print text as well as multimodal and digital text in balanced, innovative and engaging ways (Serafini, 2012) as preparation for their un-navigated futures.

## Conclusion

It is likely that given appropriate selection, fluent, expressive reading, a great deal of dialogic talk and innovative multimodal follow-on activities, the read-aloud book can be sustained as a rich and valuable part of the literacy programme and across the wide curriculum. It may even indirectly enhance progress and achievement (Cunningham & Stanovich, 1998). Slow and collaborative book based reading, given the right conditions, may offer our netizens the same thrill as text situated within fast digital technologies. Perhaps the impact resides within the very slowness of a well chosen and well read book; the anticipation of the next picturebook, or the next chapter, 24 hours away until the read-aloud slot in the timetable comes around again; a whole day to reflect on what has already happened, or to predict what might occur in the next session, will almost certainly motivate our young readers to value the contemporary version of

15th century technology. The warmth of a shared experience, the chance to toss the ideas around with classmates and the teacher, the opportunity to stall and discuss an idea or a word, a problem or the quality of a solution, might still be powerful enough for teachers and students to commit themselves to the read-aloud tradition. There may also be value in the 15 minutes a day where it is possible to truly inhabit the lives of others. Delpit (1988) suggests (albeit in reference to classroom power and privilege, but so perfectly suited to the critical nature of read-alouds) that teachers and students need to take part in:

...a very special kind of listening, listening that requires not open eyes and ears, but open hearts and minds. It is not easy but it is the only way to learn what it might feel like to be someone else and the only way to start the dialogue (p. 297).

This is literacy. This is literature. This is book language in a sophisticated array of visual image, print and design, where empathy, pathos, understanding, contradictions, interactions, paradox and complex forms of knowledge about the world come together and are enclosed between the simple end covers of a book. The process, in the first instance, just needs a teacher (and the students) to go to the library, to select the text, read it aloud and then start the dialogue.

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## Students' growth patterns in reading comprehension

*Zhonghua Zhang, Patrick Griffin & Esther Care*

The University of Melbourne

Students' growth in achievement has important implications for the future prosperity of a nation. Examining students' growth patterns across different achievement groups provides insights about the impact of policy and pedagogical practice on the classroom and may reveal outcomes likely to have substantial implications for long-term education goals.

### Students' achievement growth

Of concern in student achievement are the longitudinal growth patterns of students across different achievement levels. Understanding of the growth patterns of all students rather than just focusing on struggling students has important implications for policy making, teaching, and schooling. More studies (e.g., Ding & Davison, 2005; Rambo-Hernandez & McCoach, 2015; Xiang, Dahlin, Cronin, Theaker, & Durant, 2011), have been addressing these patterns, many of them in US context.

### Purpose of the study

This chapter shares findings from an Australian Research Council funded Linkage project (Griffin, et al., 2009) that identified a 'flat line' of achievement of high ability students across grade levels from Grades 3-9 in reading comprehension and numeracy. In this project, one hypothesis was that teachers who used evidence-based interventions and operated within a collaborative team using a developmental learning paradigm, and who were supported through school structures, would have increased impact on student learning outcomes. Longitudinal data collected from different cohorts were examined for growth of student achievement over time. The analyses of student scores on reading comprehension and numeracy online assessments showed statistically significant growth for each grade (Griffin, Murray, Care, Thomas & Perri, 2010). However, further analysis (Care, Griffin, Zhang, & Hutchinson, 2014)

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revealed that students in the highest quartile were not making steady gains in comparison to students in the lower quartiles. These results are consistent with findings in other high stakes accountability testing programs that provide data on student achievement locally (NAPLAN; ACARA, 2013b) and internationally (Volante & BenJaafar, 2008). Subsequent teacher focus group discussions revealed difficulties in identifying intervention strategies for students in the highest quartile or for students at the higher order proficiency. Although there is no evidence of a link between the latter finding and the patterns of student achievement, the results raise questions about identification of practices that might successfully realise the potential of every student, including those in the highest quartile.

## Method

### *Reading comprehension assessment*

All the data were collected using the Assessment Research Centre Online Testing System (ARCOTS). More than 10,000 students who were enrolled in the Department of Education and Training (DET) primary and secondary schools, participated in ARCOTS testing each year during the research study. The schools were mainly located in four DET regions, across urban and rural areas in the state of Victoria.

Results from reading comprehension tests are presented in this study. The ARCOTS assessment system contains a battery of tests drawing on a range of content and skills with varying levels of complexity and difficulty. The tests form a tailored test battery consisting of a two stage series of tests designed for different ability groups of students. Test items for each test were developed that would capture a range of performance across grade levels attended by students from approximately 8 to 14 years of age. There is overlap in both content and complexity between contiguous tests, including some common items. Each test is comprised of 40 items and designed to be completed in approximately 50 minutes. The items are presented in multiple choice format on an online platform. Items on the tests are mapped onto a uniform latent variable scale for each domain that fits into a single-parameter Rasch model. A common-item non-equivalent examinees equating design was employed for vertical scaling to map all the item parameters as well as students' latent scores from different tests onto the same scale. Following item development, a skills audit, which is a process that identifies the cognitive skill required to answer each question correctly, was conducted on all test items in order to ensure that the items were consistent with the previously developed learning progression. Test data were calibrated using item response theory software Conquest (Wu, Adams, Wilson, & Haldane, 2007).

### *Participants*

The numbers of students from the 32 schools participating in the study are listed in Table 1. These students represent a sub-sample of the students studying in Grades 3 to 6, who took the ARCOTS reading tests in 2012. We selected the sample based on classes which completed the reading comprehension tests in both March and September in 2012.

Table 1. Sub-sample of students contributing results in 2012

Grade	Total	Number of students		Number of classes	Number of schools
		Low-achieving	High-achieving		
3	708	187	181	36	17
4	578	148	154	26	12
5	488	129	126	25	13
6	776	194	194	39	22
Total	2550	658	655	126	32

### *Defining initially low- and initially high-achieving students*

Two ways of defining initially low- and initially high-achieving students were employed in the study. The first way (ability grouping across classrooms) was to group the students according to their abilities relative to the distribution of the reading proficiencies of all students within each grade level. The students whose reading comprehension test scores were in the bottom quartile (equal to or below 25%) and the top quartile (equal to or above 75%) in March 2012 were identified as initially low-achieving students and initially high-achieving students respectively. The sample distributions of these students are presented in Table 1.

The second way (ability grouping within classroom) was to identify the initially low-achieving and initially high-achieving students within each classroom. Initial high-achievers and low-achievers were defined as those whose reading comprehension test scores in March 2012 placed them within the top 25% or bottom 25% in their classes respectively. This approach captures different groups of students because some students who are ranked as high-achieving in an individual classroom might not be identified as high-achieving in the entire sample. It is hypothesised that the gains of relatively high-achieving students and low-achieving students will vary greatly across different classes. As a result, it is important to account for classroom-level random effects. To draw inferences about the gains of the initially low- and high-achieving students classified within classes, a multilevel modelling method was employed.

## Results

### *The overall gains of the students by grade*

Descriptions of students' achievement scores on reading comprehension tests in March and September 2012 are presented in Table 2. The results of paired t-tests indicate that there are statistically significant differences across the two time periods, consistent across the four grades. The mean differences as well as the effect size of the differences show medium positive growth. It can be seen that the means of the gain scores are almost the same for Grade 4, 5, and 6, with an average growth of about 0.45 logits on ARCOTS reading comprehension. The average of the gain scores for Grade 3 is slightly less than for the other grades.

Table 2. Student achievement on ARCOTS reading comprehension tests by grade from March to September 2012

Grade	March 2012		September 2012				Gains	
	Mean	SD	Mean	SD	Mean	SD	t	Effect size (Cohen's d)
3	0.70	0.76	1.01	0.86	.30	.69	11.77**	.38
4	1.01	0.88	1.46	0.91	.45	.71	15.18**	.50
5	1.27	0.78	1.73	0.94	.46	.74	13.86**	.53
6	1.62	0.68	2.07	0.89	.45	.69	18.16**	.57

Note: \*\* -  $p < .01$

*The gains of the initially low- and high-achieving students (Ability grouping between classroom)*

The means and standard deviations of the initially low- and high-achieving students' scores on reading comprehension tests taken in 2012 are summarised in Table 3. The analyses were conducted by the grouping of students across classrooms. The results of the paired t-tests analyses indicated statistically significant growth in reading comprehension ability between March and September 2012, consistent for both the initially low-achieving group of students and the initially high-achieving group of students across different grades. For the initially low-achieving students, the mean differences and the corresponding values of effect sizes show substantial growth from March to September in 2012. However, the equivalent values for the initially high-achieving students demonstrate medium or small growth from March to September in 2012. The comparisons of the gain scores between the initially low- and high-achieving groups indicate statistically significant differences, suggesting that the initially low-achieving students had significantly greater gains than did the initially high-achieving students, consistent across the four grades.

Table 3. Students' mean scores (logit) on ARCOTS reading tests and comparisons of score differences from March to September 2012 by grade (Ability grouping across classroom)

Grade	Achievement group	March 2012		September 2012				Gains		Difference of gains	
		Mean	SD	Mean	SD	Mean	SD	t	Effect size (Cohen's d)	t	Effect size (Cohen's d)
3	Low	-0.20	0.39	0.31	0.61	0.50	0.66	10.52**	.996	5.84**	.60
	High	1.66	0.45	1.78	0.64	0.11	0.63	2.44*	.217		
4	Low	-0.10	0.48	0.62	0.69	0.72	0.73	12.03**	1.211	7.30**	.83
	High	2.06	0.39	2.20	0.68	0.14	0.66	2.61**	.253		
5	Low	0.27	0.53	0.85	0.78	0.58	0.87	7.50**	.870	2.39*	.30
	High	2.18	0.34	2.52	0.73	0.34	0.70	5.44**	.597		
6	Low	0.72	0.38	1.27	0.75	0.55	0.69	11.12**	.925	3.75**	.38
	High	2.44	0.29	2.74	0.64	0.30	0.62	6.74**	.604		

Note: \* -  $p < .05$ , \*\* -  $p < .01$

*The gains of the initially low- and high-achieving students (Ability grouping within classroom)*

The same comparisons were conducted for the initially low- and high-achieving student groups which were defined within classroom. The results are presented in Table 4. The same score change patterns are present, confirming the previous findings that the initially low-achieving groups demonstrated slightly faster growth than that of their initially high-achieving peers. Notably, one of the limitations of this analysis is that it does not take into account the classroom effect. In order to deal with this problem, using Mplus 6.1 (Muthen & Muthen, 2008), students' gain scores were modelled in relation to the students' status of being initially low- or initially high-achievers. Four different multilevel models, each for a grade level, were examined. The dependent variable in the first-level model is the students' gain scores. The independent variable in the first-level model is an indicator variable, coded as 0 or 1, which indicates whether the student belongs to the initially high-achieving group. A score of 0 in the indicator variable denotes membership of the initially low-achieving group and a score of 1 denotes membership of the initially high-achieving group. The second level modelled the effect of between-classroom variability in the intercepts of the first-level model.

*Table 4.* Students' mean scores (logits) on ARCOTS reading tests and comparisons of score differences from March to September 2012 by grade (Ability grouping within classroom)

Grade	Achievement group	N	March 2012		September 2012		Difference March to September			Difference of gains		
			Mean	SD	Mean	SD	Mean	SD	t	Effect size (Cohen's d)	t	Effect size (Cohen's d)
3	Low	209	-0.08	0.46	0.42	0.65	0.50	0.66	10.93**	.888	5.66**	.56
	High	211	1.51	0.55	1.64	0.76	0.13	0.67	2.88**	.196		
4	Low	164	0.09	0.62	0.71	0.70	0.62	0.72	11.07*	.938	4.05**	.44
	High	167	1.84	0.6	2.15	0.71	0.31	0.68	5.87**	.472		
5	Low	136	0.42	0.61	1.02	0.81	0.60	0.84	8.29**	.837	2.74**	.34
	High	143	2.04	0.45	2.39	0.78	0.34	0.70	5.83**	.550		
6	Low	221	0.89	0.49	1.46	0.85	0.57	0.74	11.58*	.822	4.11**	.38
	High	223	2.34	0.35	2.65	0.69	0.31	0.64	7.19**	.567		

Note: \* - p < .05, \*\* - p < .0

The results of the multilevel modelling analyses are shown in Table 5. The intercepts, which represent the grand means of the gain scores for the initially low-achieving students, range from .425 to .477 for the four different grades, demonstrating the positive growth of the initially low-achieving students' scores from March to September in 2012. The regression coefficients for the variable 'high-achiever' in Table 5, which indicate the initially high-achieving students' gain scores relative to the initially low-achieving students' gain scores, are all negative across the four different grades. These results indicate that the scores of the initially high-achieving students

on reading comprehension tests improved less than those of the initially low-achieving students from March to September 2012 – additional support for the previous findings.

Table 5. Fixed effects derived from multilevel modelling analysis

	Model 1 (Grade 3)	Model 2 (Grade 4)	Model 3 (Grade 5)	Model 4 (Grade 6)
Fix effects				
Intercept	.425	.464	.477	.453
<i>Is high-achiever</i>	-.369**	-.308**	-.262**	-.267**

## Discussion

### *The gains of the initially low- and high-achieving students' achievement in reading comprehension*

One of the purposes of the study was to examine the students' growth patterns in reading comprehension as well as to determine how initially low-achieving and initially high-achieving students might grow differently in reading comprehension from March to September in 2012. The results of the study demonstrated a significant growth from March to September in reading for all students when pooled. However, the comparisons of growth from March to September between the initially low- and initially high-achieving students by grade suggested that the initially high-achieving students had slightly less improvement than the initially low-achieving students in reading over approximately six months. This main finding that the initially high-achieving students grow slightly slower than the initially low-achieving students is consistent with the findings of other studies (e.g., Ding & Davison, 2005; Rambo-Hernandez & McCoach, 2015; Xiang, Dahlin, Cronin, Theaker, & Durant, 2011). Xiang, Dahlin, Cronin, Theaker, and Durant (2011) from Northwest Evaluation Association™ (NWEA) used the student-level database and the computer-based adaptive Measures of Academic Progress™ (MAP) assessment to compare the performance and growth of initially high-achieving students to that of the average-achieving students (middle-achievers and low-achievers) over multiple years in reading and mathematics. By tracking the students' MAP scores over four years, they firstly examined whether the students who were identified as high-achievers – defined as the top 10% students in their study –, kept the status as high-achieving students over four years. They found that, although a majority of high-achieving students were still in the top 10% over time, “substantial numbers ‘lost altitude’” (p. 8). Specifically, their findings revealed that nearly three in five high-achieving students in the initial year remained high-achieving after four years and around two in five initial high-achievers lost their status and were mostly identified as middle-achievers, called “Descenders” by the authors. Using hierarchical linear modelling (HLM), they also compared the growth rates of high-achieving students in relation to the middle- and low-achieving students in reading and mathematics over four years. The results of HLM analysis revealed that these initially high-achieving students did not keep up the same growth rates as their lower-achieving peers, particularly in reading. Although the initially high-achieving students still outperformed the initially low-achieving students by large gaps, the initially low-achieving students demonstrated significantly faster rates of improvement than the initially

high-achieving students in reading. And the sluggish growth of the initially high-achieving students indicated the possibility of narrowing the gaps between the low-, middle-, and high-achieving students in achievement. Another study that to some extent replicated Xiang et al.'s (2011) work was conducted by Rambo-Hernandez and McCoach (2015). Using a three-level longitudinal piecewise hierarchical linear model, the authors contrasted summer and school-year growth rates to examine the initially high-achieving students' as well as the average students' growth trajectories in achievement over time. The results of their multilevel modelling analysis indicated that the average students grew steeply during the school year while the initially high-achieving students grew more slowly than average students. The results of this study partly echo the findings of the study conducted by Ding and Davison (2005), who employed a multidimensional scaling technique to examine the growth patterns of students' math achievement between 1997 and 2000. Their analyses revealed a negative correlation between initial achievement level and growth rate, indicating that "low achieving students in general did have higher growth rates as shown by the negative correlation between the initial achievement level estimate and the growth rate estimate" (Ding & Davison, 2005, p. 94).

### *Implications*

These findings have important implications. Although it appears that the gap between the low-, middle-, and high-achieving students is closing over time, others may be concerned about the 'levelling' at work (Xiang, et al., 2011). The factors that lead to these imbalanced growth rates may be complex. Many factors operate at different levels (e.g., policy, family, school, classroom, teachers, peers, and even assessments), and several hypotheses can be tested to explain the phenomenon. For example, that teachers focus on the low-performing or struggling student is a plausible explanation (Xiang, et al., 2001). Another hypothesis might focus on the degree of alignment between curriculum or pedagogical approaches and the assessment tools. Regardless, these findings may send an 'alert' message to educators that improvement in outcomes for low-achieving students may come at the expense of improvements for high-achieving students. Learning opportunities should be similarly available for all students, both low- and high-achieving.

### *Limitations*

There are some limitations in the reporting of these results that should be noted. First, a convenience sampling strategy has been employed to select students who completed the tests in both March and September 2012. Therefore, the distribution of the scores of the current sample of students (rather than normative cut-scores) was used to define the low- and high-achieving students. This may have implications for the generalisability of the findings. It is therefore noted that this analysis is exploratory, due to the non-representative sample, as well as to failure to fully control student mobility. Second, the accuracy of the score estimates for the lower and higher achieving students might influence the findings. Fixed-form tests rather than computerised adaptive tests were used to estimate the students' reading comprehension skills. If a non-targeted test (too difficult or too easy) or insufficient targeted items in a test (few difficult items or easy items) are used to measure the students' abilities, the abilities might not be accurately estimated. Fortunately, the testing system which was used to measure the

students' reading comprehension in the study can be seen as a quasi-adaptive testing system in which, depending on how the students respond on the items, additional items better targeted to their level of skill are presented as part of the test. One of the main research purposes of the larger study from which these data were derived was to provide teachers with the technical competence to target assessment to student ability and to use assessment results to improve their teaching practice and effectiveness. Hence, teachers selected targeted tests for students based on their estimation of their students' abilities. In addition, the tailored testing system enabled students who were mis-targeted, to take additional easier or more difficult test items based on their responses. This approach helps to minimise possible ceiling effects, which can be characterised as a lack of "room to grow". The findings from Xiang, et al. (2011) which provide "uniformly" smaller standard errors for students whose abilities were located along the latent continuum, and very probably eliminated ceiling effect, have provided additional support for this approach. In the future, computerised adaptive testing systems should be considered more widely in order to obtain more precise estimates for students who are scored at the extreme ends of the distribution. This will maximise the accuracy of information on which teachers can act.

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## Part Five

### Future-oriented teaching and learning

Teaching for tomorrow today challenges teachers to create a new culture of learning for a world of constant change. 21<sup>st</sup> century issues such as citizenship and sustainability are amongst those that teachers might address. In addition, generating meaningful, dynamic learning opportunities for all students through the pedagogically sound use of new technologies is an exciting reality. Ensuring learners are digitally literate and enabling them to maximise the potential of new technologies and apply them to 21<sup>st</sup> century issues requires teachers to be nimble, innovative and creative. They must become comfortable working at the cutting edge of new approaches whether that be in early childhood centres or tertiary teaching environments.

Questions which challenged the authors in this sub-theme of *Teaching for tomorrow today* were: How do we prepare tomorrow's teachers to embrace these challenges? How do new technologies impact teachers' professional practice and identity? How can technology extend, enhance, and augment the learning environment? What is the value of playing to learn in a technological world?

## Creativity and preparing future teachers: Teaching for creativity, innovation, or meddling in the middle?

*Elizabeth Anderson*

The University of Auckland

Creativity has enjoyed a resurgence recently, and eminent thinkers dispense with ties and stroll conference stages acclaiming the energies that drive a contemporary creative age taking us into the twenty first century. Their addresses often proceed to lament the prevailing directions in school systems and curricula that act as a foil to creativity. Questions and tensions do exist around beliefs, traditions and assumptions about creativity. We in teacher education want to produce teachers who will teach creatively, teach for creativity, and foster creative learners, but how comfortably does creativity fit in the tertiary setting where these prospective teachers are being prepared to teach? And if we consider it important, how can it be integrated into our systems?

I position myself as arts educator and teacher educator. This chapter has grown from the conversations and arguments that our team of colleagues has had over terms, approaches and interpretations as we have questioned how we shape teachers who will go on to nurture creativity knowingly and purposefully in their classes, and who will see and use the space in the curriculum for a creative approach to a possible future. I set out to shed some light on those terms and the dilemmas raised as notions of creativity have been reconceptualised. As application in practice I refer to how, in one course co-taught with a colleague, we attempted to do things differently, and the challenges that resulted. Our thinking and talking drew on the work of Robinson (2001) and Pope (2005), and that of Jeffrey and Craft (2004), Claxton (2008) and Barnett (2015). I look not so much at the barriers but at the affordances creative approaches offer for taking schools and teachers towards the twenty first century.

Creativity has come into public interest in the twentieth century. The word was not even used before 1875 – in religious and artistic senses, *creator*, *create*, and *creation* were well known,

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but it was during the twentieth century that the more secular notion of creativity took over from divine and sublime senses of creation. It has now taken on the same sort of meaning as “production,” and everyone, artists and advertisers, educators and entrepreneurs are staking a claim for creativity. Psychological and educational circles used the term in the 1920s, and the 1940s and 50s saw the term becoming more current. The stereotypical notions of inspired genius, extraordinary mind, and artist as outsider are still attractive, and other fields such as neuroscience have taken an interest. As creativity has undergone a reconceptualization it has found resonance with complexity and emergence theories, recognising the sometimes chaotic nature of the creative process, and of the idea that structures often emerge at the edge of chaos. Both Pope (2005) and Robinson (2001) come to definitions which are similar and satisfactory as starting points – that creativity refers to the capacity to make, do or become something fresh and valuable with respect to others as well as ourselves. The notion of creativity still slides between terms though – does it refer to initiating something, continuing it, or completing it? Is being creative doing something alone, or with others? For education perhaps it is useful to think about creativity as doing, not so much absolute beginnings and endings, but what goes on in the middle. This active focus has driven our thinking about how it may play out in our working situation.

The opening pages of the New Zealand Curriculum (2007) assert the curriculum’s vision for “young people who will be creative, energetic and enterprising” (p. 8), and list “thinking critically, creatively, and reflectively” (p. 10) among values to be encouraged in students. Elsewhere in the curriculum, the word “creativity” appears in that form only once, in the statement for Health and Physical Education where it is noted that students will develop creativity “through the processes of selecting, preparing, cooking and serving food” (p. 22 NZC). Adjectival and adverbial forms of the word, however – creative thought, thinking creatively, creative processes – do appear in many other parts of the statement. We maintain that all teaching and learning should be coloured with creativity, yet we do hold that the arts has a distinctive and unique role in nurturing the creative life. As educators working with prospective teachers and with schools, we have seen the push for assessment escalate and the incentive for the arts decline. If the curriculum were re viewed and re written again, how could creativity be placed more centrally?

If creativity is to be seriously addressed, a language will need to be negotiated to ensure shared understanding, for “creativity” comes with all sorts of baggage. The relationship between creativity, education, curriculum, and pedagogy for example poses a dilemma. Curriculum is an epistemological tool for defining bodies of knowledge, but is also a management tool for allocating time and resources. If creativity were placed more centrally in the curriculum, boundaries between subjects might be more fluid, yet that might prove a problem for the managerial curricular function. Because creativity by its nature is about the generating of new ideas, and involves flexibility, finding new connections and experimentation, it does not fit as fixed knowledge. It fits more as an active knowledge creating process within the curriculum working from a knowledge base to make and produce something novel and useful.

Creativity’s particular strength for the educational context is that it crosses and makes connections between disciplines of knowledge. That implies teacher action in selecting appropriate strategies and shaping their affordances to and with the content, thus calling on the

teacher's pedagogical knowledge. Creative teaching, the skill of using imaginative approaches to making learning more interesting is ideally a skill for all teachers. Teaching for creativity is directed at developing the student's own creative thinking. The atmosphere, the culture for learning in the classroom will allow one to lead to the other, and implies a third concept, creative learning, where learners use their imaginations to collaborate and shape their own learning.

The work of Robinson (2001) and Eisner (2005), who write about the arts; that of Claxton (2008) who provokes rethinking school settings, and Jeffrey and Craft (2004) who write of creativity and teaching – all have contributed to our thinking about how preparing students to teach and creativity can come together. Barnett's (2015) writings about the university context have reminded us too that the future those teachers will face is uncertain, and that perhaps the speculative open minded thinking of the arts may be a possible best preparation. It is not that creativity is the only answer, and it's not about thinking that being free and letting go is all there is to it. On the one hand, too often what passed for creativity may have been an undisciplined and undemanding process, and on the other, we in the arts are used to having students arrive in our classes proclaiming "Oh but I'm not creative!" Giving people opportunities to approach learning openly and creatively, and making available to them the affordances of many disciplines, may encourage the growth of thinking and dispositions that will develop their own inner resources. From our side as educators, we need to know our own disciplines with a perceptive awareness, and, ideally, be able to bring some flexibility to bear on the systems we work in. Looking to a future, we stake a claim for the arts because the arts combine thinking, imagining and feeling, and it is in the intersection and the use of those affordances that perhaps we may be able to find creative innovative approaches for taking schools and teachers into the twenty first century.

The creative process is dynamic, about doing, and it thrives on collaboration. Complex and convoluted, it needs time and freedom to play, take risks, and experiment. Eisner (2005) talks about how one of the lessons that the arts can teach education is about the way that ends shift – a teacher needs what he calls flexible purposing. And if play and risk are associated with creativity, Eisner's words remind us that uncertainty needs to have a place in schools, and challenges us to ask "How can the pursuit of surprise be promoted in a classroom?" (Eisner, 2005, p. 201.)

Robinson(2001) talks about how creating is about finding the medium, and finding how to control it – and Eisner (2005) speaks of how form and content are inextricable- that the arts teach us that how something is said is part of the content. In the arts, Eisner says, judgements are made in the absence of rule – and he means that we have to learn to rely on nuance, on the getting the right fit, and by paying attention to particulars. Judgements may mean failures too – but by shifting focus and trying another way, we develop a critical judgement about just what is right. As Robinson (2001) says, creativity is not just about free expression and letting go – it is more about hanging on and persisting, playing with constraints which ultimately lead to making unusual connections and a shifting awareness – and we may realise then that not everything is outlined in propositional knowledge forms. From our perspective as arts educators we see those as critical lessons for education to learn from the arts – and they are certainly ideas that have guided our teaching.

We want to tell the story of an optional course a colleague and I teach to third year students in the last part of the final year of the teacher education programme. We aim to challenge them to think innovatively and creatively about the concept of curriculum integration, and we want them to launch into their teaching careers with an enlivened excitement and a determination to be the most inspiring and creative teachers they can be. Our practical goal is to invigorate their experience and practice in Arts teaching by requiring a presentation through the Arts, and to stimulate them, in the last weeks of their degree, to take pleasure and enjoyment in original ways of thinking.

We set up a study to research our teaching, the students' perceptions and the collaborative teaching process, and took Picasso's quote as an inspiration –

*Some painters transform the sun into a yellow spot; others transform a yellow spot into the sun. (Pablo Picasso)*

Picasso's words were for us an acknowledgement of our commitment to the Arts, and our unashamed determination to instil a little more arts into the final year offerings of the teacher education programme. The artist's word "transform" was right too, because it had the idea of making something into something else – not starting from nothing, but taking a starting point and turning it into something new.

The course is built conceptually round big ideas. In groups, students identify a "big idea" that could take a number of different directions into different knowledge fields, yet have a substance, real life significance, a connection to deeper thinking. The idea should have the potential to hook the interest of senior primary students, and the students are to balance teacher thinking and student perspectives as they speculate how to stimulate and sustain interest and curiosity. A group might take for example "Out of the Blue" or "When Worlds Collide" to spin inquiry in a kaleidoscope of directions, then synthesise their findings in a presentation through the arts. With creative thinking and collaboration, and fortified with the arts, we hope, in Picasso's words that those student teachers will transform that yellow spot into sun, and go out as creative teachers to transform their classrooms into places of inspiring, creativity-infused learning.

We argue and debate our approaches every year. We reshape explanations. We talk about collaboration as a feature of creative work, about how we see ourselves as guides or resource people rather than dispensers of knowledge. We encourage them to take time to talk, to be unafraid of going down cul de sacs only to find it was the wrong direction, to experiment and taking risks. Groups range in their responses - spectacular successes, and some who did not quite "get it." Group types are predictable: the one with the inspirational leader, the guy who gets the aim of the course and runs with it, and has his whole group talking "Yeah, yeah and what if we...and how about we ..."; the group who works online/offsite/off task – approach them and they grin, hastily set their lap tops to a research site, and say breezily "Yeah nah, all good, all sweet we're fine"; and the play-it-safe crowd, who just want to rejig a unit they did last semester with a nice wall display, avoiding the effort of doing something really different.

Doing something really different is needed in more spheres of life than education. At the beginning of the twenty first century we all have to acknowledge that we need new thinking and

creative ways of approaching the threats and challenges to our planet and our unsustainable way of life. Our schools should be places of moving, connecting, responding, and doing rather than just sitting and being told, as Gilbert (2005) urges. Models of thinking, learning and ability are now more about the making of connections, Gilbert says, and new skills and learning we cannot predict will depend on connections made with existing information. It is this sort of flexibility, collaboration and fluidity that we want to encourage in our course. We look for new questions to be posed, and a patience and preparedness to sit with ambiguity and uncertainty. Those thinking dispositions are the ones that may eventually come up with novel and creative solutions.

During the course we worry about how many of them “get the point,” and we are always left with questions and the unsettling doubt that we are not getting anywhere. We have tried to study our own process and that has been a rewarding aspect, extending ourselves into a more focused research interest in creative teaching, teaching for creativity and creative learning. However, the large classes, high fees, high stakes testing and limited course length that characterise the tertiary environment do act against the sort of course we dreamed of, where there is time to play with ideas, talk at length with others, come up with novel solutions. There have however been successes and lessons learned, and three themes emerge – first, realisations about our expectations; second, the usefulness of “meddling” as a teaching approach; and last our final thoughts about the match of the tertiary environment and creativity.

We have realised that we have to adjust expectations. Our expectations both for our teaching and for involving students in putting the course under a research lens simply did not match the time available or the context. The process of registering willingness to participate in the research, bound by ethical considerations, was unwieldy and confusing, and it was not possible to offer any tangible incentive. Taking student disposition into account, we resisted heavy doses of questionnaires and surveys, and decided to make voluntary response sheets available. A low return rate of our (creatively) designed response sheets indicated that we clearly had not achieved student “buy-in,” and after a few weeks, the students moved on from the module to another part of the course. We have to realise that we are dealing with final year students, and the most pragmatic factor impacting on them in those last weeks of the semester is their focus on employment prospects for the next year and simply getting through. Perhaps it was just that we always wanted to capture them all – and we never could. And we do have to realise that we did have many successes, and comments from students have been rewarding -

*We as students are so exposed to a set way of learning/study that we don't think of other ways growth can be achieved within ourselves. It's scary with all us becoming teachers as well! Thank you both for your time. I am fascinated by creativity and hope to explore more of it with my children next year. (Student, EDCURRIC 309 2014.)*

...and another

*Although this has been left field from a traditional course of study, it has been so engaging, with a lot of personal growth achieved within myself, and has allowed me to look at things in a different light. I have been able to explore ideas I have had before now that have been doing nothing and only sitting in limbo, and while doing this found new ideas that I wouldn't have otherwise. It's been a course that has allowed me to synthesise prior*

*experiences and explore ideas. I've found that I have needed to look at things with a wider telescope, to turn my blinkers off. (Student, EDCURRIC 309, 2014.)*

The transformation of our own teaching approaches was the most successful aspect of the study of the course. In long discussions, we redesigned sessions, crafted new explanations and came up with response sheets, which we thought ingenious even if the students did not. We completely reshaped our initial session and reflected on the success of using it as a microcosm for the course. We had long discussions about creative theories, collaboration, how to guide the students, and in that regard it was an article by McWilliams (2008) that captured our attention. Her view that creativity should be a core business of education and her questions about how creativity could come together with pedagogy to be learnable matched our thinking. Her concept of teacher as “meddler in the middle” suited the approach we wanted, rather than the other two models she says are outdated – “sage on the stage” and “guide on the side.” McWilliam, along with other thinkers and writers such as Robinson (2001), and Florida (2002), writes about how the shift from an industrial and information age to the present age has demanded a more creative and flexible capacity, and that it is by working with others that new ways of approaching previously unanticipated problems might in time be solved. The point she makes for teaching is that if we cannot rely now on older habits of thinking and doing in the world, then teachers too should be thinking and doing differently, and, most importantly for us as arts educators, tackling those future challenges requires that creative capacity. The meddler approach she writes of is characterised by an active interventionist stance, by teachers and students mutually involved in assembling and dis-assembling knowledge, and in weaving practices across domains. McWilliam (2008) captured the sense of what we wanted to do, and we have reflected since that perhaps should have meddled more deliberately.

Lastly, our thoughts on the tertiary environment. There are of course multitudes of examples of creative teaching to be found in all subjects and very successful ones, but sometimes the constraints of the systems can act against our best intentions and hopes. Robinson (2001) did have a point when he wrote that the purpose of a university degree was not necessarily to make people creative. As he says, they do other things and do them well, but complaining that graduates are not creative is as Robinson says like saying “I bought a bus and it sank.” (Robinson, 2001, p.4). Students in tertiary institutions become used to high stakes testing, rigid deadlines, high costs.

We are searching a direction for education into the twenty first century, and despite those constraints, teacher education, we feel, should be a place where students do get time and space to think and wonder and experiment.

We have discovered the challenges of trying to research our own practice thoroughly and honestly, and the experience of co-teaching has been valuable in terms of insights gained into each other's arts disciplines, and into approaches to teaching. A constant reflection on the philosophy and theoretical background for the course has helped us and will have implications for the way we continue to teach and advocate for programmes in Initial Teacher Education. The point we make is that the encouragement of creative thinking, the encouragement of imagination, the fostering of the openness and flexibility that creativity generates is likely to help us all on our path into an uncertain future, and teachers need it more than ever in their

work with the children who will go on to make their own path. Perhaps our future lies in courage in taking a leap – and the words of another artist, a writer, can sustain our teaching into another course –

Look before you leap is criticism's motto. Leap before you look is creativity's.  
(E. M. Forster, "Two Cheers for Democracy," 1951, cited in Pope, 2005.)

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## Teachers narrating their experiences in teaching: Chinese teachers' perspectives on communicative language teaching (CLT)

*Chunrong Bao, Lawrence Jun Zhang & Helen Dixon*

The University of Auckland

In recent years, there has been an increasing demand for learning Chinese around the world. This is also true in New Zealand. While it is a good sign that New Zealanders are interested in learning Chinese, many TCSOL teachers are not necessarily familiar with student-centered classrooms as they have been accustomed to taking a teacher-centered approach, which has been popular in classrooms in Mainland China (Li, 2010) or in Taiwan.

It is well documented that teachers' beliefs influence their interpretation and enactment of new teaching ideas and practices (Putnam & Borko, 1998). However, researchers hold different views whether or not TCSOL teachers' traditional beliefs "bottle" (teacher-centred classrooms) can be filled with different "wines". Some posit that beliefs are personal values and ideologies (Verloop, Van Driel, & Meijer, 2001), which are resistant to change if established early in life (Borg, 2003); others, for example, V. Ellis (2010) considered it as psychological process, which is historical and dynamic and "undergoing changes right before one's eyes" (Vygotsky, 1978, p. 61; cited in Ellis, 2010, p. 95). A further confounding factor affecting the adoption of CLT in TCSOL classrooms (Liu, 2000) relates to teachers' efficacy beliefs, including efficacy expectation and outcome expectation, which means teachers must believe in their ability to implement new methods and they must also believe that such methods will have desirable outcomes for themselves and their students (Dixon, 2011). Practicing CLT, like implementing any other "new" methods, requires positive efficacy beliefs, as teachers' efficacy beliefs are essential to their successful implementation of any new and innovative pedagogies or assessments (Dixon, 2011; Tolosa, 2009).

This study sought to explore how TCSOL teachers from Mainland China will implement CLT in NZ when facing the changing contexts and students with various backgrounds.

## Participants

Twenty TCSOL teachers were invited to be participants in this study, one of whom was the first author of this chapter, Chunrong. After obtaining ethics approval from The University of Auckland Human Participants Ethics Committee, the first author, Chunrong, sought the consent of relevant faculties to get access to them. Eventually, twenty teachers satisfying the purposive criteria (see Table 1) became eligible participants.

*Table 1.* Purposive criteria for participant recruitment (both in Mainland China and NZ)

1. Age	Born after 1977
2. Working experience	At least two years teaching experience
3. Qualifications	Bachelor's or higher degree (the first degree should be received in Mainland China)
4. Majors	1) Foreign languages; OR 2) Chinese-related language, literature or linguistics.
5. Others	1) Having experience of studying or working outside China; AND 2) Having stable student groups; AND 3) Teachers of adults; AND 4) Being passionate and cooperative.

## Research setting

As Table 2 shows, these participants' experiences involve four countries (Mainland China, New Zealand, Cambodia, and UK), and twenty-seven cities of seventeen provinces in China, including their hometowns, as well as the places where they have studied and worked.

*Table 2.* Information of the Participants

Participants	Provinces	Cities	Countries	Majors	Qualification	Age
20 (Female 18; Male 2)	17	27	4	English 5 TCSOL 14 Chinese 2 Others 4	Bachelor 1 Master 19	Born in the 1970s 2 1980s 9 1990s 9

## Narrative inquiry

Narrative inquiry has been adopted as the method of data collection for this study. Hollway and Jefferson (2013) posit that it is impossible to understand one's inner world without knowing his experiences or through another person. Narrative inquiry, as both a phenomenon and a methodology, serves these purposes for this study, because it helps interpret how to understand experience (Clandinin, 2013). Following the process stated in Figure 1, the three authors carried out the case study of the first author with the four stories as themes and then examined the other nineteen TCSOL teachers' life history narratives with interpretive qualitative analysis to uncover these teachers' beliefs.

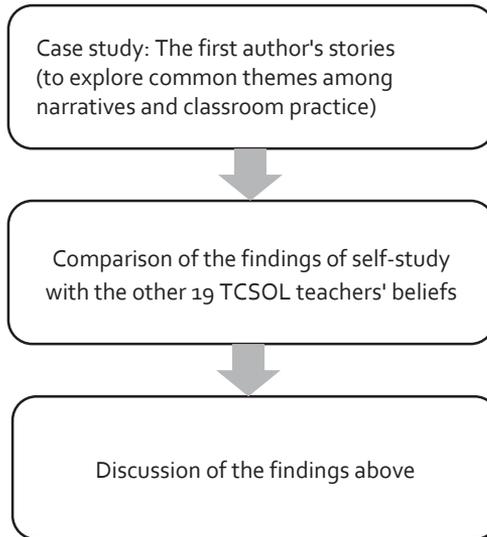


Figure 1. Research process in narrative inquiry

### *Narrative interviews*

Narrative interviews (Kvale & Birnkmann, 2009) were adopted to gain insight into the beliefs of the nineteen participants. Each interview started with “Could you please introduce yourself?” After the ice-breaker question, the researchers were merely a listener, without interruption, posing questions occasionally for clarification and assisting the participants in continuing to tell their stories (Kvale & Birnkmann, 2009). The interviews became an iterative process in that after each interview the researchers kept contact with all the interviewees. Whenever further questions arose, the researchers kept in touch with them via Webchat, emails, text messages and telephone.

Those teachers’ beliefs were explored with the findings of the case study as themes. Numerous themes indicating the participants’ beliefs were revealed from the data. However, because of the limited space, only four themes are reported as the focus in this chapter, three most commonly occurring and one least commonly occurring. The examples presented are also only a small portion of the data. It was anticipated that these teachers’ beliefs would be not only comparable to those of the first author’s, but also to TCSOL teachers’ beliefs in different educational contexts elsewhere.

### Case study: the first author’s stories

#### *Philosophy of the case study*

The case study was based on the understanding of social constructivism (Sakui & Gaies, 2003), taking the view that not only are a teacher’s beliefs socially constructed, they are also constructed by the teacher’s life experiences, educational and cultural knowledge (Denzin & Lincoln, 2000).

*Participant of the case study*

This case involved the first author, Chunrong, who was a front-line TCSOL teacher having studied and worked in NZ for four years. Before Chunrong came to NZ, she was an English major and worked as an English teacher in a senior high school for seven years in Mainland China.

*Data of the case study*

The participant's developmental beliefs were interpreted by drawing on a set of data such as Chunrong's life history narratives (e.g. diaries), teaching plans, memos and classroom tape-recordings (Sakui & Gaies, 2003).

The life history narratives focused on the period since 2011 when she arrived in NZ whereas the teaching plans, memos and classroom tape-recordings were from a six-week (01/2015~02/2015) Chinese studying programme with thirty classes in total. In the six-week programme, twenty-three 0-level non-native Chinese speaking students were enrolled, all of whom were of an Asian background except two NZ (or Kiwi) students (see Table 3).

Table 3. Students in the six-week programme

Countries 8	South Korea	Malaysia	Vietnam	Japan	Indonesia	India	Chinese heritage	NZ
Number(No.) 23	10	1	3	3	1	1	2	2

## Findings of the case study: some examples

When referring to beliefs about CLT, the case-study participant would prefer to say "teaching language communicatively" (TLC); in other words, any method can be categorized into CLT as long as it helps improve communicative competence.

*Belief One: Teachers should create authentic scenarios and speak at authentic speed*

## Story One

Before the first class, I said "Nǐ hǎo" ("hello" in Mandarin Chinese (MC)) to each student coming into the classroom, and all of them could reply correctly. Following "Nǐ hǎo", I asked a second question "Nǐ jiào shénme míngzi?" ("What's your name?" in MC), few of them could answer it. I repeated and explained that questions word by word, and then taught that expression formally. During the break, I played a song named "Nǐ jiào shénme míngzi?" without any explanation. The next day, I acted as a stranger and asked "Nǐ jiào shénme míngzi?", everyone could reply correctly but not fluently. After this question was asked in every class, the students were capable of replying like a native Chinese speaker.

(Chunrong's field notes: Feb, 2015)

For most students in NnCSC, the classroom is their only place to speak Chinese; hence TCSOL teachers have the responsibility to take great advantage of the interaction with the students by creating authentic scenarios before, during, and after the class, applying what they have learnt as much as possible and speaking authentic language at a normal speed rather than limit the language to "standard" (See Appendix 1). As in Story One, the teacher repeated these sentences, until the students were able to follow. In addition, TCSOL teachers can play different

roles, apply or encourage students to make the best of such rich resources as Chinese songs, magazines, movies and dramas inside or outside the class. Meanwhile, exploiting and employing the learning resources involving diverse topics also increases the students' potential communicative opportunities. This procedure is also teachers' tool to identify individual student's actual and potential levels of development (Ellis, 2003).

*Belief Two: Attention to influence of the students' native languages is essential.*

Story Two

I studied Korean with my students after class, because most of the students were from South Korean. At least I should learn how to read their names and know their potential problems in studying...They helped me with the limited Chinese they had learnt. For example, one day, they taught me how to pronounce 'ㄹ', it is "r", not "l". In spite of many times they repeated, I still could not sense the difference, but I realized they had already mastered the differences between the two consonants and the reason why they could not pronounce Pinyin "l" and "r" clearly.

(Chunrong's diary: Jan, 2015)

This belief was a confusion puzzling the first author, Chunrong, for many years and developed in three main periods (see Appendix 2), because the interference of learners' native languages had been a long-term issue. As Mishler (1986) once described communication in psycho-social perspectives, different people might not share the same meanings when they came into the same account, because any kind of account was only a mediation of reality. Although it is a depiction of the potential contradiction between interviewers and interviewees, it accommodates the relationship between teachers and students as well, especially for those teachers and students with different cultural backgrounds. In Story One, Chunrong tried to be a language learner of her students. She learnt Korean with her South Korean students, and the content she learnt was the same as the Chinese taught that day. On the one hand, this process forced the students to master what they had learnt, on the other hand, the teacher could find out the difficulties Korean students might meet. In effect, this process did make her successfully understand the difficulties Korean students were confronted with in Chinese learning, such as their pronunciation of "l" and "r".

The first author, Chunrong, believed that if language were a person, the grammar would be the skeleton, vocabulary the muscles, and culture the flesh. Mechanical memorization makes the skeleton and muscles solid and strong, while communication makes the body well-developed. Savignon (1991) also stated that communicative competence does not deny the importance of grammar, because communication cannot take place without structure or grammar. Teaching of grammar should not be neglected; rather, communicative ability should be developed without the loss of accuracy (Savignon, 1991; Zhang, 2006). Grammar-translation and CLT are assumed not to be opposite ends of a continuum, where the two can be overlapped. Grammar is just a container, what it contains is much more important. Teaching grammar is not a simple presentation of grammatical theory, nor a bare sentence structure. Whether in inductive or deductive method, it is the content that could make grammar teaching more informative. Zhang (2006) once put forward a solution:

CLT classroom activities can be organized to develop students' communicative competence by learning grammar in context, due to a need arising in a particular

communicative task. Activities can also focus on the creation of the need for communication, interaction and negotiation of meaning (p. 39).

*Belief Three: Grammar should not be neglected, but how to teach grammar is of great importance.*

Story Three

When I taught the grammar "Tag questions", I asked one South Korean student two questions in English as below to indicate that as, tag questions are used to confirm that a certain fact or urge someone to accept certain suggestions.

"You can speak Korean, can you?" (To confirm a fact)

"Let me study Korean with you, OK?" (To urge someone to accept the suggestion)

Confirming the students understood the meanings of "tag questions", I asked the two questions again in Chinese, using "duì bu duì?" ("right?") and "h students mastered it immediately.

After that, a scenario was created.

A girl tries to persuade her boyfriend to buy a gift for her, which might be very expensive. The boyfriend could choose to buy or not to buy, but must state a reason.

Consequently, all the students were able to use the tag questions properly.

(Chunrong's field notes: Jan, 2015)

The teaching process in Story Three was consistent with the suggestions of Zhang (2006) exactly.

*Belief Four: Teachers' multi-language awareness is an effective tool. There should be at least one interlanguage between teachers and students.*

Story Four

An Indian student told me he found Chinese so hard for him. But I remembered a fact that he could speak Japanese according to the questionnaires of the first class. I asked him to recollect how to pronounce 'telephone' in Japanese, he told me 'denwa' (電話), which was correct. I used the Japanese 'denwa' to help him pronounce Chinese Pinyin 'diànhuà' (□ □) and then explained the difference between Chinese character and Japanese Kanzi, it is just like something coming to him in a flash

(Chunrong's diary: Feb, 2015)

The more languages a teacher can speak, the better. Language learning and teaching is, in fact, a kind of negotiation of the cultures of teachers and students. In addition to the working language, teachers and students had better have one or more interlanguage, especially when the working language, namely, English, is L2 for both teachers and students in NZ.

In order to find out the students' backgrounds, in the first class, Chunrong asked the students to fill in a questionnaire about the languages they could speak. The result (see Table 4) indicates that all of the students were able to speak two or more languages, except one student who could speak English only.

Table 4. Languages the students reported speaking

Languages	English	Korean	Malay	Vietnam	Japanese	Indonesian
No. of Students	23	12	1	3	6	1
Languages	Cantonese	Spanish	Italian	French	Afrikaans	
No. of Students	3	2	1	2	1	

As in Table 3 and Table 4, all of the 23 students were able to speak English, but only two of them were English native speakers. That is to say English was L2 for 91% of the students, also of Chunrong, the teacher in this class. However, over 96% of the students could speak two or more languages, among which Korean and Japanese took up the two biggest proportions besides English. If the teacher had knowledge of Korean and Japanese, she could get through about 80% of the class when necessary. In effect, she had learnt Japanese for five years but never used it. In Story Four, Chunrong successfully helped an Indian student to pronounce Chinese with the knowledge of Japanese, which indicated it was not necessary that teachers were proficient in different languages, but should have some basic knowledge of those languages, especially the languages in different language families, so that they could have a better understand of the difficulties students might have.

#### Comparison with the other 19 TCSOL teachers

As shown in Table 5, 100% of the teachers hold the first three beliefs, while only two teachers (10.5%) supported the last one, which means most teachers not only have admitted that traditional grammar-translation is acceptable, but have also realized the importance of authentic languages and understanding the students. In contrast, not many teachers have recognized the necessity of multi-language awareness

Table 5. Comparison with the other 19 TCSOL teachers' beliefs

No. of classes indicating the beliefs	No. of the other 19 teachers who mentioned it	Origins of the belief
Belief One 30	19 (100%)	1. Personal learning experiences(19);
Belief Two 30	19 (100%)	2. Personal teaching experiences(19);
Belief Three 30	19 (100%)	3. Friends' learning experiences (2);
Belief Four 6	2 (10.5%)	4. Previous teachers' influence (positive 15, negative 4);
		5. Students' encouragement (16);
		6. Other family members' influence (e.g. cousins, parents, grandparents) (19);
		7. Colleagues' teaching experiences (2)

In addition, the origins of the beliefs in Table 5 can be summarized into two categories: personal experience and very influential persons (VIP), each of them with several subthemes (See Figure 2).

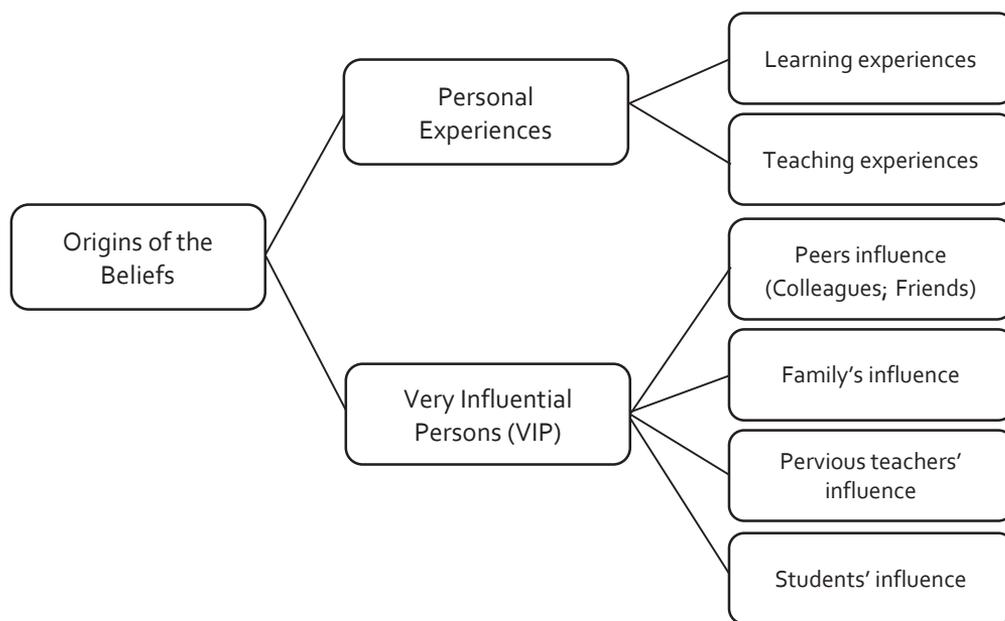


Figure 2. Origins of teachers' beliefs

## Concluding comments and implications

### *Beliefs and personal experiences*

“Personal experiences” was obviously most frequently mentioned by the participants, and these experiences influenced the formation of teachers’ beliefs. Teachers established their new beliefs in the university and never stopped developing them. This result was contradictory to some researchers’ perspective that teachers’ beliefs about teaching have been well established by the time they get to university (Weinstein, 1989) and these beliefs are resistant to change, because it is culturally bound and formed in their early life (Williams & Burden, 1997).

### *Beliefs and VIP*

The influence of a VIP is to teachers what the influence of teachers is to their students. Education never stops to extend in the future generation. Bandura (1977) has argued that efficacy beliefs are influenced by credible role models. This seems to be the case in this study as a VIP has been influential in regard to teachers’ beliefs.

In addition to the two themes above, some other potential factors are expected to be discussed, for example, will teachers’ communicative competence affect their beliefs about CLT/TLC? If yes, what influences their communicative competence? Is it communicative motivation, teachers’ disposition, aptitude, or something else?

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## Appendices

### *Appendix 1: stories of developmental belief one*

The first time I went to a library in NZ, I said "thank you" to a staff, her "no worries" surprised me. "Why she did not say 'you are welcome'?" I wondered. The standard answers, like the roots of a big tree, grew deep into my mind, even making me believe that it was the truth, never doubted about them. Having been an English teacher in a China's senior high school, I 'helped' the students to memorize "'you are welcome' is used to answer 'thank you'; 'not to worry' is used for 'sorry'". That moment I could help being sad that if College Entrance Examination were a competition, how many students had suffered such undeserved lost? In the process of overemphasizing standard language, standard accent, standard grammar, standard answers, but where is the authentic language?

(Chunrong's diary: July, 2011)

### *Appendix 2: stories of developmental belief two*

#### Period 1

... I could not get satisfactory grade for my papers because of language...sometimes, for example, when I read academic papers, I thought I had understood, but it was not the authentic meaning; sometimes, I thought I had expressed well, but the listener made a different sense...

(Chunrong's diary: Nov, 2011)

#### Period 2

One of my Kiwi (local New Zealand) friends "if you are my language teacher, you should tell me how I am thinking, and then the differences between the two languages..."

(Chunrong's diary: Aug, 2012)

#### Period 3

When my supervisor read my papers, he told me 'I can understand what you want to say, but you should speak in another way...' That moment, I felt the world not grey any more... I realized how important for a teacher to understand both English and the students' native language (Because my supervisor knows both English and Chinese well).

(Chunrong's diary: March, 2014)

## Teachers absent: Impacts upon the transition of students with significant special needs

*Sarah Hart, Mary Hill & Janet Gaffney*

The University of Auckland

Programmes supporting transition to community life for individuals with significant disability and their families are undergoing pilot testing in Aotearoa New Zealand. The pilot programmes are designed to respond to wider issues of social justice by positioning individuals with disability as active citizens within their own communities (Ministry of Social Development, 2006). To achieve this, New Zealand students with the most significant disability within the school population can access the Ongoing Resource Scheme (ORS) to learn alongside their peers in mainstream or special school settings. Rather than leave school at age 18 as is typical for most students, ORS funded students can choose to stay in school until age 21 to focus on transition. In 2014, over half the ORS funded students aged 19 through 21 chose to attend special schools (Ministry of Education, 2015). Students with access to ORS funding who are in their final transition year of school are supported by a transition team. Central members of the transition team include family, a Ministry of Social Development funded transition provider (also known in other pilot programmes as facilitator or navigator), and teachers (Ministry of Social Development, 2006).

### *Transition as social justice*

The vast majority of transition research seeks to understand transition through its outcomes (e.g., employment rates, enrolment into post-secondary education, living outside the family home). This project frames transition through the capability approach (Nussbaum, 2006; Sen, 1980). In recent years, there has been an increasing amount of literature using capability to examine a range of disability issues in an effort to ensure appropriate provision and quality of life opportunities (e.g., Brown, Hatton, & Emerson, 2013; Reindal, 2008; Terzi, 2007). Through a capability lens, transition is understood as access to opportunities which uphold a life of dignity (Hart, 2013). A flourishing life requires promotion of personal abilities and the freedom to enact

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those priorities with dignity equal to their mainstream peers in transition. In doing so, community are enhanced by the inclusion of a unique, diverse perspective.

All students exit school with a range of personal capabilities. For students with significant disability, personal capabilities are not always noticed, or may be interpreted differently across the various perspectives of those who work with them. Working from a capability premise, that individuals with significant disability have unique and important abilities pertinent to their own transition, the issue then becomes how those abilities are interpreted and enacted through the support of the transition team.

### *Planning for a transition with dignity*

Planning for a transition with dignity requires placing the student as central to their own transition. A lack of active participation and involvement from students themselves contributes to the existence of poor post-school outcomes (Shogren & Plotner, 2012). For example, a “one size fits all model” of transition services including low expectations and restricted access to integrated community environments (Shogren & Plotner, 2012, p. 28). Centralising the viewpoint of students with significant disability including communication challenges in articulating their own goals, interests, strengths, and support needs, is challenging and reliant upon those who know the individual best to advocate for their perspective.

Individuals involved in transition teams often have different vantage points from which they know and understand the transitioning student. Each transition team member may hold differing expectations about the aspects of transition that they feel are important (Meadows, Davies & Beamish, 2014). Likewise, each may compile different information about students’ abilities and support needs. “Multi-informant approaches” require collaboration across multiple transition team members which diversifies the collective knowledge about the transitioning student but can also lead to communication issues. Challenges to collaborative transition planning can cause a lack of individualisation and overlook capabilities that each student brings. For example, Cooney (2002) found that although both parents and professionals worked in the best interests of young adults’ outcomes, their overall inability to collaborate across diverse perspectives hindered the quality of the transition process. Carter, Brock and Trainor (2014) found distinct divergence between parents and teachers within transition-related strengths and needs of students they planned for.

### *Teachers’ role in special education planning*

Research on teachers’ collaborative practices have found that they can dominate special education teams. Martin et al. (2006) used momentary time sampling within 109 Individualised Education Plan (IEP) team meetings and found that special education teachers spoke the most, during 51% of the intervals. Using the same sampling approach, earlier research by Vacc, Vallecorsa, Parker, and Bonner (1985) found teachers and parents spoke for a similar amount of time. However, 33% of parents’ contributions were considered to be passive, considerably different from teachers’ contributions considered passive for only 3% of the time. Likewise, Ruppard and Gaffney (2011) analysed an IEP meeting with focus on decision-making processes and outcomes for a 5-year-old boy on his transition to school. School professionals strongly dominated the meeting, though the special education teacher only spoke for 4.3% of the intervals.

Teachers influence was found to be more informal, in communication leading up to meetings which impacted effected tacitly held beliefs, and in turn, educational decisions.

Morgan, Callow-Heusser, Horrocks, Hoffmann and Kupferman, (2014) defined “transition teachers as secondary-level professionals who provide direct services to young adults with disabilities related to moving from school to employment, postsecondary educational opportunities, and independent living” (p. 150). Transition teachers were considered “responsible for assessing skills, teaching young adults in appropriate settings to increase academic and functional skills related to transition, and providing transition-related services to prepare young adults for postsecondary education, employment, and independent living” (p.150). Kohler’s (1996) Taxonomy for Transition Programming includes relevant transition aspects of student-focused planning, student development, family involvement, programme structure, and interagency collaboration as models for effective planning, modelling, and evaluating transition. More understanding is needed on the role of special education, or special school, transition teachers’ within transition teams and their impacts upon the students they teach, and beyond.

## Methodology

The empirical study reported in this chapter used an ethnographic design to understand how three ORS funded students experienced transition from special school into community life, including for one student, tertiary education. Data collection was guided by life experiences (Stake, 2010). The qualitative fieldwork began within two urban special schools in Aotearoa New Zealand and continued by following the three students as they began their lives post schooling. Both of the schools were collaborating with Ministry of Social Development transition pilot programmes designed to assist these students to make this transition. The special school teachers were qualified and registered primary school teachers.

In early 2013, the first author invited participation from students exiting special school in that year. Participants were not selected using purposive sampling for having exemplary transitions in any positive or negative way. Rather, characteristics of the case participants naturalistically emerged. Three central participants Faine, Cobain and Haku (all names used are pseudonyms), and their families accepted the invitation. The participants were all males with autism spectrum conditions (Baron-Cohen, et al., 2009). Males made up 76-78% of the two special schools. This is associated with the fact that four out of every five individuals with autism spectrum conditions are male (Jacquemont et al., 2014). All three were 21 year old.

Sixty transition informants supplemented the central participants’ data. Informants did not provide proxy information on *behalf* of the central participants, as has often been the case in disability research (Carter, et al., 2014). Rather, informants provided information about their own understandings of transition planning and made the decisions which were often out of students’ control. Ten of the 60 informants were considered to have a high amount of influence on the transition decisions of the participants. The criteria used for deciding upon the amount of influence on transition decisions were that those individuals who spent the most hours in transition planning and had significant authority for decision making were considered high influence informants, while those who spent less time involved and made few, if any transition decisions were considered low influence informants.

Data collection was conducted over a six-month period spanning both in-school and post-school time points. Weekly observations of the three transitioning students totalled 103 hours. Forty-six recorded field notes described experiences and observations associated with the participant observations. Further supplementing participant observations, were two hundred and twenty six collected artefacts included documentation (e.g., transition reports, Individualised Education Plans, email correspondence), photographs taken by first author and the participants themselves, and video. Adapted interviews were conducted with the three central participants. Fourteen semi-structured, interviews were conducted with the high influence informants, audio recorded, and transcribed.

Thematic analysis was used to provide a flexible framework to manage the complex, qualitative data set (Braun & Clarke, 2006). N-vivo software was used to identify initial codes. Codes were combined into overarching themes established through in-depth analysis on data from five observed transition planning meetings occurring in both in-school and post-school time points related to both teachers and their students. Also, 14 semi-structured interview transcripts with high-influence transition team informants directly inquired about teachers' role within the transition team. Themes were then reviewed for how they related to three central participants' outcomes as seen through a theoretical lens of capability. Faine's transition planning meetings occurred outside the timeframe of the study. However, he remained within the scope of this analysis because all of his informants took part in interview and the data regarding these is included in the findings section below.

## Findings

Analysis of the transitions from special schools generated an "unanticipated insight" (Braun & Clarke, 2006, p. 97). It appears that to a large extent, teachers were excluded from the transition teams which planned post-school life for their students. Findings will first describe teachers' absence from five observed transition planning meetings. Next, pertinent interview data from high influence transition informants describes each teacher's absence, the reasons why each was excluded, and explores the implications of their absence, most importantly upon their students' ability to live a flourishing life following school.

Teachers were not invited to, did not directly nor indirectly participate, and thus were entirely absent from all five of the observed transition planning meetings. Two planning meetings were related to Haku's transition, both held on the polytechnic campus, the location of his pre-employment course he enrolled in after leaving school. Each meeting lasted for an hour and a half. The first meeting, an enrolment interview, was held during in-school phase. The second, a person-centred education plan, was held after Haku left special school. Haku was present at both meetings as were his mother, lead polytechnic teacher, and subject polytechnic teacher, on one occasion. Three transition planning meetings related to Cobain's transition, and were held at his residential care home. All occurred during the in-school research phase, and each lasted two hours. In attendance were one residential care administrator, Cobain's house leader, mother, and grandmother, on one occasion. Cobain never attended. Field notes describe what transition planning looked like in one meeting about Cobain:

*As the planning meeting unfolds, Cobain's adult life turns into a laundry list of 'things to try' that no one is sure he'll like anything of. There's no central focus, no human capability*

*he is working towards. How might this be different if the teacher were present?* (Field notes, FN. 13, in-school phase)

Teachers' interview transcripts supplemented observational data. Faine's teachers expressed their hopes and dreams for his future. When asked if they had any way to pass along those aspirations to future support staff, teachers replied that they had not met any of them. Interview data provides understanding of teachers' absence from their own perspective.

(Teacher #1) *It's really hard, I'm finding, from the teacher's point of view with transition, because you don't have any input. You don't have any say on how things go, even if you know that all sorts of things would be ideal for [transitioning students]. You don't have any input into it.* (Interview transcript, Faine's teachers, T.2, in-school phase)

Haku's teacher expressed similar sentiments in her interview. When Haku's teacher was asked if she was involved with any planning meetings her reply was "No". Likewise, when we discussed Haku's programmes following school she stated, "I don't know what their programme covers." (Interview transcript, Haku's teacher, T.7, in-school phase). Her lack of transition participation was described:

*I don't feel like I've played a big part in his transition, except that we keep Haku up-to-date with what's happening, and we talk about it as part of the day. ... But really his mum and transition provider have done the work with him.* (Interview transcript, Haku's teacher, T.7, in-school phase)

### *Teachers' absence – underlying conditions and implications*

The three teachers were all absent from transition planning yet for different underlying reasons that were discussed in their interviews. Cobain's teacher felt her perspective was overshadowed by the relationship between Cobain's mother and his residential care staff. His transition from school marked a time where connections with the school were being severed, while the scope of residential services was expanding. Haku's transition provider dominated his small transition team. Since his mother had no immediate or extended family to support her, she was guided by Haku's transition provider, stating that "whatever [Haku's transition provider] brings up is cool. Without [Haku's transition provider] I have no idea what's going on" (Interview Transcript, Haku's mother, T.8, in-school phase). For Faine's teachers, a school policy restricted them to the classroom during school hours. Thus, they were unable to go for community visits, or attend transition related planning meetings held within school hours. Paraprofessional teaching support staff, or teacher aides, supported students in community environments during the school day, and reported their observations back to Faine's teachers.

Teachers expressed frustration and concern regarding their exclusion, yet when describing their teaching role teachers expressed the need to be supportive and follow the lead of the transition team, rather than contribute to it. Their passive position was found throughout the teachers' transcript, exemplified by Faine's teachers:

First author: *Where do you see yourselves in the bigger picture of Faine's transition? What's your role?*

[Teacher #1]: *Because we don't get to see these places...*

[Teacher #2]: *We're just preparing him...*

[Teacher #1]: *We're preparing him. And supporting him in what he chooses to do.*

First author: *What do you mean when you say preparing?*

[Teacher #2]: *We're trying to give him as many skills as we can before he goes.*

(Interview transcript, Faine's teachers, T.2, in-school phase)

Without the active contribution of teachers, transition team collaborations lacked a valuable perspective. Each teacher had been responsible for teaching their transitioning student for at least three years and had accumulated a great amount of knowledge about their student spanning across educational and community contexts, as well as with a range of central support persons. With this knowledge absent from students' transitions, we turn now to student outcomes.

### *Student outcomes*

The students experienced exclusion from transition planning similar to the experiences of their teachers. The most striking example was Cobain's absence from all of his planning meetings. Cobain's participation would have been difficult due to the significance of his communication challenges. He was so far removed from his own transition, however, that across the half-year of observations, there was never a recorded instance where someone made it meaningfully clear to him that that he was finishing, and leaving school. Haku was physically present in his planning meetings; however he took a passive position. Planning meetings were managed by the lead polytechnic teacher, someone with whom he had only forged a preliminary relationship. He answered questions when prompted, but in his communication with someone unfamiliar offered little of his own contributions.

Cobain, Haku, and Faine entered community-based programmes that cater solely for individuals with disability. Thus Cobain, Haku, and Faine and their peers occupy physical spaces of being "in but not of" their local community (Bray & Gates, 2003). Such programmes segregate citizenship and restrict engagement with the wider community.

### Discussion

This chapter has argued that teachers' absence from transition contributed to their students' capabilities being overlooked or underexplored. The script of the participants' transitions had been written for them without full collaboration from transition team members who knew them best. Important opportunities for the transitioning students may have been missed. Haku, Cobain, and Faine could not overtly advocate upon their own behalves. Their voice went unheard without effective collaboration from a diversity of transition team members.

This study enhances our understanding of collaborative transition teams. Teachers who typically dominate special education processes (Martin et al., 2006), were found to be absent from both the formal and informal transition planning for the transition of their students. This research confirms that while collaboration is necessary to promote citizenship and individualised community outcomes (Carter, Brock & Trainor, 2014), it remains challenging in practice (Cooney, 2002).

In light of transition policy currently undergoing pilot testing in Aotearoa New Zealand, findings of this research provide several insights for future focus. Participants' teachers were all

registered as primary rather than secondary trained teachers, which contrasts the definition of a transition teacher provided by Morgan et al. (2014). Secondly, students were not active participants in their own transition planning, a fundamental aspect of the transition taxonomy (Kohler, 1996). Finally, future focus needs to be given to ways to promote transition teachers' presence and participation, even at the end of a students' school journey.

The lived transitions for Cobain, Haku, and Faine fell short of the social justice intentions of pilot transition programmes in Aotearoa New Zealand. Each experienced a disability specific, community segregated, generic outcome (Shogren & Plotner, 2012) restricting their opportunities for participation in inclusive communities and undertaking meaningful activities (Ministry of Social Development, 2006). When placing the focusing on using the teaching practices of tomorrow today, teachers' complacency with their absence is unacceptable. While many facets of transition teaching have been studied (Morgan, et al., 2014), an unexplored aspect of transition teachers role might be to not only advocate for their students, but to also advocate for enhanced opportunities for genuine community integration. In doing so, teachers can advance not only their students' outcomes, but also the notion of a socially just transition with dignity.

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## Designing for teaching and learning – an interdependent process of learning to teach

*Trond E. Hauge*

University of Oslo

‘Learning to teach: It’s complicated but it’s not magic’ – with this title, Spalding, Klecka, Lin, Wang and Odell, in a special issue of the *Journal of Teacher Education* (2011), summarise seven articles that suggest ways of surmounting obstacles in learning to teach. The articles explore a set of well-known challenges in teacher education: developing teacher identity, transforming expectations, designing for intercultural development, learning subject matter knowledge, developing communities of practice, giving systematic support for teacher learning and developing the classroom culture (Cf. also Darling-Hammond & Bransford, 2005). Thus, skilled teaching is far from magic; rather, it is a complex endeavour based on a set of advanced skills of planning teaching and instructions, as well as managing and orchestrating individuals, communities and tools in an effort to foster learning.

Taken together, different strands of knowing and learning conceptualise teacher learning as a dual and complex process enacted in individuals’ constructing, participating in and transforming social practices (Ellis, Edwards & Smagorinsky, 2010). This perspective provides important conceptual tools for exploring the relationships between knowing and context as researchers design, enact and study programmes for teacher learning. This study aims to deconstruct such activities by using two interdependent levels of teacher work and student learning: design for teaching and design for learning. The former focuses on what teachers are doing when planning and implementing teaching. The latter captures what students are doing when approaching learning in interaction with the teacher’s design for teaching.

The dual concepts of design for teaching and design for learning are borrowed from studies in technology-enhanced learning environments (Hauge, Lund & Vestøl, 2007; Lund & Hauge, 2011). The approaches are aligned with the Vygotskyan perspective on teaching and learning as a mutual and reciprocal development process between the teacher(s) and the learner(s),

mediated by tools and objects of learning. From this perspective and for all practical purposes, the two design types are mutually constitutive of the learning activity.

In this study, the interdependent interactions among institutional, collective and individual levels of learning are addressed to illuminate the task of learning to teach in an inquiry-based, initial teacher education programme. The key questions researched are as follows: (1) How can the dual framework of design for teaching and design for learning help in understanding the process of learning to teach? (2) What are the implications and limitations of the framework regarding design and pedagogy in teacher education?

## Design for teaching and learning

This chapter argues for the use of the dual concepts of design for teaching and design for learning as an analytical approach to the understanding of the complexities in learning to teach. Originally, the design concepts were developed in connection to how teachers were designing learning and navigating technology-rich learning environments (Hauge et al., 2007). The modelling of the design concepts has been an iterative and continuous process, followed by empirical studies of teacher learning (Hauge, 2014; Hauge & Dolonen, 2012; Lund & Hauge, 2011). This chapter represents a further step in exploring the concepts and their significance for the understanding of teacher learning in the context of initial teacher education.

The education research literature reveals a mixture of concepts about the work of designing teaching and learning. Generally, ‘design for teaching’ is used synonymously with ‘design for learning’, comprising instructional and other approaches to teaching. Design for teaching is not discussed very much in relation to the specific nature of learning other than in a normative manner (Cf. Bransford, Brown & Cocking, 2000). A lack of distinction between the concepts is also found in studies of digital technology-informed design for learning (Cf. Laurillard, 2012). However, the concept of design for learning seems the prevailing notion in the literature, based on practices of constructing technologies that scaffold learning. Specifically, the term ‘learning design’ is used in reference to a formal description of activities that can be handled by a computer and played for an end user. This technology-oriented design practice may appear under different headings, such as ‘learner-centred or user-centred design’, ‘instructional design’, ‘IMS learning design’ and ‘computer-supported collaborative learning’ (McAndrew & Goodyear, 2007; Wasson, Ludvigsen & Hoppe, 2003). In this chapter, the term ‘design for learning’ is reserved for the learners’ autonomous and interactive action with the design for teaching enabled by the teacher. The term ‘design for teaching’ is used more as ‘the process by which teachers – and others involved in the support of learning – arrive at a plan or structure or design for a learning situation’ (Betham & Sharpe, 2007, p. 7).

This study focuses on the process of learning to teach by examining the work of designing for teaching and learning from two distinct but interdependent positions: the teacher as the responsible agent for teaching and instruction, and the student teacher as an active and autonomous learner responding to teaching. The teacher and the student contribute to the outcome of learning from different positions. However, they are linked in reciprocal activities of teaching and learning. In the case studies of Hauge et al. (2007) and Lund and Hauge (2011), this dual perspective is exemplified and defined through sociocultural lenses focusing on the development of designs for teaching and learning in school. The authors argue that the work of

designing teaching is essentially what teachers do when planning teaching through the interpretation of curricula and competence aims, implementation of the planned activities and design of classroom learning. The process may involve learners; however, the intentions behind this aspect of designing are primarily those of the teacher and of the wider educational policies and settings. However, the implemented design for teaching also reflects the institutional values and practices of teaching and learning as materialised in the physical, social and organisational structures of the school, leadership and management. 'Design for learning' refers to what actually happens when learners engage and interact with cultural tools and artefacts in the community of learners, constructing and developing their learning objects.

While designs for teaching delimit learning activities, designs for learning emerge from the individual learner's work process; they are situated in the learner's needs, initiatives and knowledge, the immediate opportunities and social interactions (Lund & Hauge, 2011). Figure 1 illustrates the interrelation between the two design activities and the mediating tools in learning to teach.

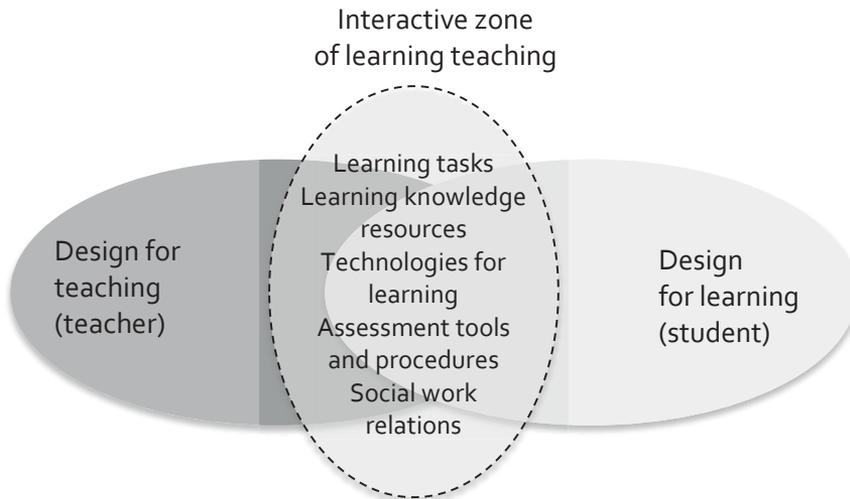


Figure 1. The interactive zone of learning teaching

Figure 1 shows an interactive model of learning to teach, based on the interrelated design activities of the teacher(s) and the student(s). The interactive zone of learning to teach is located in the intersection between the designs for teaching and learning. This is the significant interaction point for the learner(s) in learning to teach. The model illustrates a set of mediating means for developing learning activities in teacher education, for example, the learning tasks connected to the curriculum (e.g. learning objects, portfolio assignments, school lesson plans, classroom management tasks), the learning knowledge resources (e.g. textbooks, web resources, laboratory experiments) offered to the student teachers, technologies for learning (e.g. virtual learning environments, whiteboard, mobile devices, office tools), tools and procedures for the assessment of learning (e.g. supervision, tests, examinations, portfolios, peer

reviews) and social relations in the work situation (e.g. community of learners, work distribution between student(s) and teacher(s), regulation of social interactions).

As activities unfold in the interactive zone of learning, the design for learning constitutes the individual student's response to the teacher's act of teaching. The student's design for learning is partly contextualised outside of the teacher's design and partly inside his or her design for teaching, which means that the student's process of learning to teach is an autonomous and responsive action to what happens in the enabled design for teaching. However, it also reflects values and experiences existing in the students' minds independent of the design for teaching. The students' different needs, experiences and motives for learning are the reason for the development of a multitude of student designs for learning that often differ from the objects and intentions in the teachers' design for teaching.

This chapter explores the reciprocity of the two design processes belonging to the teacher and the students, respectively, and the tensions and potential synthesis between them in its study regarding student teachers' processes of learning to teach. Thus, in distinguishing between the complementariness and interdependencies of the design processes, the study explores how designs for teaching are scaffolding the process of learning to teach.

### Empirical studies

To make the design aspects more explicit and to illuminate the usefulness of the interaction model of learning to teach, I now turn to a meta-analysis of a case study of two student teachers' learning and development in an initial teacher education programme (Hauge, 2002). This study is selected since it makes visible the designs for teaching and learning at different institutional and individual levels: the teacher education programme as a whole, the learning tools in the course system (learning assignments and resources, technologies, assessment procedures, communities of learning), and the students' belief systems and approaches to learning. Findings from other follow-up studies focusing on tool-mediated learning in the programme are also included (Hauge, 2006; Jahreie, 2010; Jahreie & Ludvigsen, 2007; Jahreie & Ottesen, 2010; Ottesen, 2006).

### Programme design and context

In 2000, the University of Oslo (UiO) embarked on a four-year national initiative of reforming initial teacher education by using information and communication technology (ICT). Called the Programme for Teacher Education, Technology and Change (PLUTO), this reform involved seven teacher education institutions in Norway, comprising K-12 schools at different levels. The overall aim of the PLUTO project at the UiO was to strengthen the problem-oriented approach in teacher education and enhance the linkages between student teachers' internship in school and campus learning.

In the teacher education programme at the UiO, comprising a full-year study based on previous subject education, five main design tools directed the overall approaches to teaching and learning: 1) a common Learning Management System (LMS) at all course levels, 2) case study methods in the general courses of education, 3) student learning portfolios across subject domains and internships in partner schools, 4) teacher-led seminars for monitoring student

learning and professional development and 5) a final oral examination organised around the portfolios. This five-dimensional package was rolled out step-by-step and scaled up by involving 25 pilot students, 6 academic teachers and 6 partner schools in 2000 as well as about 200 students, 15 academic teachers and 42 partner schools at the end, in 2004.

The pedagogy of the case studies and the portfolio system formed the cornerstone of the study design, around which the LMS structure and architecture had to be organised and used to fulfil the study processes. In the structure of a blended environment, the technology was designed to assist course content delivery, the use of learning resources, the handling of portfolio documents, feedback and internal communication.

### Student teachers' learning

In Hauge (2002), the two student cases were selected to illuminate the interactions between the education programme of 2000 and the student teachers' learning. The students were representative of the PLUTO pilot group as a whole with regard to attitudes and motivations for being a teacher. They had completed a bachelor's degree in foreign language education. The following data were used to describe the student portraits: field observations and interviews with the students, mind maps of learning concepts at the start of their studies, interviews concerning personal learning goals at the start and midway through their studies, a set of portfolio assignments (case studies) performed at different times of their studies, a final reflection document about learning and goal attainment, and teacher assessments of the student portfolios.

For analytical purposes and as an illustration of the students' development, Table 1 comprises an overview of a representative sample of learning assignments in the study programme and aspects of designs for teaching and learning. The students are given the codes S1 (female) and S2 (male), respectively.

According to Table 1 and the enriched empirical discussion in Hauge (2002), the case study students differed with regard to their expectations of learning and professional development. Different initial goals were reported: S1 stated a restricted practical approach, while S2 expressed a more advanced perspective on teacher work, involving developing self-confidence and teacher professionalism. S2 drew a rich concept map of the understanding of learning. The differences between the students also showed up in the first case studies about classroom management and student learning in school. However, later in their studies, these differences more or less diminished in the assignments involving complex instructional matters and group work among the student teachers. At the end of the programme, their goals for learning teaching were changed, heavily influenced by the challenges and experiences gained during their internship in school. The high professional demands expressed by S2 became more practical and realistic over time, while the expectations of S1 became more advanced. Their approaches to learning teaching varied. They utilised tools and activities for learning differently, and they transformed their objects of learning in different ways. No specific gender effect was observed in the study.

Table 1. Learning tasks and aspects of design development

Learning tasks	Approaches to learning and design development
<i>Personal learning goals</i> (start of semesters 1 and 2)	<p>S1: The goals reflect the needs for learning the basic skills of planning teaching, being a teacher, managing student interactions, using ICT and assessing learning. The practical needs for teaching are growing during her studies. S2: Learning how to be a professional teacher is top priority. Building self-confidence and developing a value-informed foundation for teaching are important. Learning to overcome the difficulties in teacher work is also essential. The goals are stable during his studies.</p>
<i>Mind maps of learning</i> (start of students' studies)	<p>S1: Concepts are restricted to a few main categories of learning and a small repertoire of connections. The associations are cognition oriented and related to practical activities. However, ICT and learning are not mentioned. S2: The mind map is elaborated on with various concepts and connections of learning, representing individual as well as collaborative processes. Different levels of learning are drawn from overall ideas to situated practices. Moreover, ICT and learning are mentioned.</p>
<i>Individual case study 1: Student learning in school</i> (semester 1)	<p>S1: The case study is descriptive, yet not in-depth concerning the students' subject matter understanding. Suggestions for the design of teaching are not very specific to the needs described. S2: The students' learning needs are richly described, based on relevant observations. The design for teaching is focused on learner needs and adaptive approaches. Theoretical considerations are included.</p>
<i>Group case study 2: Classroom interactions</i> (semester 1)	<p>S1: This group (three students) has a richer and more elaborate approach than case study 1. Instructional suggestions are well adapted to the classroom situation; however, they are primarily based on everyday considerations. S2: The study is quite descriptive, based on a simple analytical interpretation of the classroom situation. Theoretical perspectives are not utilised much. The supervisors' pieces of advice are not followed.</p>
<i>Reflection document</i> (end of their studies)	<p>S1: The student writes about her personal development during the study. She has a grasp of the solid fundamentals of being a teacher. Besides the internship in school, the case study work has contributed a lot to her understanding of teaching and learning. S2: The study has given him better self-confidence regarding teaching and learning. The internship in school seems to be of major importance in learning to teach. He does not reflect much on the theoretical aspects of teaching despite his elaborate writings in the first study assignments.</p>

## Discussion

Learning to teach is complicated, not only because teachers learn to teach by drawing on a complex array of internal and external resources, but also because it occurs over time, is contextualised and is often unpredictable (Darling-Hammond, 2006). Taken together, the work of learning teaching reflects a multitude of conditions embedded in social systems and practices, along with the unique, situated contributions from individual agents of teaching and

learning (Edwards & Daniels, 2012; Opfer & Pedder, 2011). Based on this, this study confirms the lesson developed in teacher research over a long time (Cochran-Smith, Feiman-Nemser & McIntyre, 2008; Grossman, Hammerness & McDonald, 2009; Lampert, 2010): that there is no straightforward line in learning to teach. The students in the case study set out with different goals and mindsets about learning in the teacher education programme, participated in the same communities of student teachers, worked on the same education components, were exposed to the same ICT environment and challenges and followed the same supervisory framework. However, they were placed in different training schools and practices of teaching. The students had to pass and interact with a series of sub-designs for teaching and tools for learning during their studies. The case studies confirmed how different mindsets about learning and concepts about being a teacher were at work during the interactions, individually as well as institutionally. Thus, according to the model of learning to teach in this study, the students moved in the interactive zone of learning with different personal design strategies, constrained by the designs of teaching and tools for learning given by the university and the training schools. Different designs for learning by the students appeared and formed the learning outcomes.

The tensions between the academic part of the initial teacher education programme and the students' internship in school that were revealed in many studies (Cochran-Smith et al., 2008; Ellis & McNicholl, 2015) were also manifested in this study. A shift in the students' reflections on their work of learning to teach and to become a teacher occurred in the second major period of internship in school, moving their attention from the academic work on teaching to the practice of teaching. The reform programme did not seem to change the contradictions between these arenas of learning, despite the new set of boundary artefacts of learning, including ICTs, student portfolios and case study methods that were introduced in the reform programme. This finding is confirmed by other follow-up studies (Jahreie, 2010; Jahreie & Ludvigsen, 2007; Jahreie & Ottesen, 2010; Ottesen, 2006). In the research literature at large, the revealed contradictions are often explained as a lack of coherence among different institutional designs for teaching and learning (Grossmann et al., 2009; Reid, 2011). Considering learning to teach, this study draws attention to a second explanation: the individual student teacher's design for learning and its filtering function regarding the outcomes of learning to teach. Thus, to overcome the systemic contradictions and lack of design coherence in teacher education programmes, the student teachers' personal design for learning needs to be lifted up as a distinct learning and development task. The same holds true for the many designs for teaching embedded in the programmes often presented as a given design for learning.

## Conclusion

Considering the multiple and undifferentiated uses of the terms 'design for teaching' and 'design for learning', in this study, I have argued for the remodelling of the relation between the concepts in clarifying and strengthening the efforts of assisting student teachers' learning to teach. Design for teaching is the result of an institutional activity reflecting a broad set of considerations about educational aims, curriculum decisions, structures and cultures of teaching. This forms the backdrop of the individual teacher educators' design for teaching. Design for learning is the learners' adaptive and responsive action with the institutionally

designed patterns of learning, influenced by the learners' experiences and motives for learning as well as by contextual constraints and contradictions.

Learning to teach is a complex activity. In learning to master its complexity, I have argued that designs for teaching and designs for learning need to be made visible as development tasks for student teachers during their teacher education. Being a professional teacher means mastering the work of designing teaching from the perspective of students' learning in school. Advancing this development, student teachers should learn how to design their own learning as a responsible action within the institutional designs for teaching. This means that the given designs for teaching in teacher education need to be discussed and developed as designs for learning during their studies.

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## Virtual science fair - an innovative, cooperative and international tool for science teaching and learning at school and university level

*Gabriela Jonas-Ahrend<sup>1</sup>, Stuart Fleischer<sup>2</sup> & Randall Spaid<sup>3</sup>*

<sup>1</sup>Hamm-Lippstadt University of Applied Sciences

<sup>2</sup>The Walworth Barbour American International School in Israel

<sup>3</sup>Middle Georgia State University

Almost 100 years ago, science fair history began when E.W. Scripps created “Science Services” as a nonprofit organization in 1921. The purpose was to bridge the gap between scientific achievement and the public’s knowledge of such achievement. Over the years the purpose of science fairs has been modified. Not only society in general but also teaching and learning have changed and are still changing in an immense way.

Science fairs have a long history in science education and are well established in many countries (but not in all) around the world. They are competitive-collaborative hands-on ventures for middle school students. In some countries, there are also national science fairs. Furthermore, huge international science fairs such as Intel International Science and Engineering Fair<sup>69</sup> and Google Science Fair<sup>70</sup> have been established in the last decades. Today’s middle school students are growing up in a digital environment vastly different from just twenty years ago. The students easily master the communication technologies of the 21<sup>st</sup> century. Regarding those facts a new form of science fair was developed in 2004: a virtual science fair. Utilizing the powerful online tools provided by Moodle™ interactive software, the student projects are hosted online and an e-mentoring process is part of the project – in addition to the “traditional” science fair process which is still occurring in school. The embedding of e-learning tools into the traditional science fair fosters self and group-directed

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*Author Contact:* gabriela.jonas-ahrend@hshl.de

<sup>69</sup><http://www.intel.com/content/www/us/en/education/competitions/international-science-and-engineering-fair.html> (05-20-2015)

<sup>70</sup> <http://www.google-science-fair.com/en/> (05-20-2015)

student inquiry and investigation. New participants in a virtual science fair are so called “e-mentors”. They are (mainly) pre-service science teachers from different universities. Each e-mentor works together with their given team from the beginning of the project until the project is completed. This combination of science fair, Moodle and e-mentoring is a unique worldwide teaching and learning situation. E-mentors are skilled in science inquiry and in science education. They interact with their team of middle school students throughout the design, research, experimental, and analytical phases of the science fair project. Using password-protected Moodle web space, students report progress to their e-mentor by posting to a wiki, and reflect on what they are learning and challenging/ by posting to their blog.

### NESA virtual science fair (NVSF)

The NESA<sup>71</sup> Virtual Science Fair (NVSF)<sup>72</sup> project was launched in fall 2004 for American International Schools (AIS). The Near East South Asia Council of Overseas Schools (NESA) is a non-profit, voluntary association of more than 75 international schools in the Near East and South Asia, a region stretching from Greece and Egypt in the west, to Nepal, Bangladesh, and Sri Lanka in the east. Member schools follow a U.S.-style curriculum and typically serve students of more than three dozen nationalities. The NVSF is designed to implement a science fair that engages hundreds of students, e-mentors, judges, and teachers from schools crossing geographic and geopolitical zones. What was once considered impossible can be accomplished with today's e-learning tools and e-mentoring - pairing science teacher students with middle school students, regardless of the place they live. In doing so, it helps establish content-related, curriculum-based “tele-apprenticeships” (Levin, 1987), or what Riel & Harasim (1994) refer to as “electronic mentorships”. E-mentoring, as defined for this project, is the “use of e-mail or computer conferencing systems to support a mentoring relationship when a face-to-face relationship would be impractical” (O'Neill, Wagner, & Gomez, 1996, p. 39). The virtual science fair project is also a research effort, examining the nature of adult-child interactions and collaborative, asynchronous teaching and learning in primarily text-based, computer-mediated environments (Harris & Jones, 1999). The participating middle school students are encouraged to inquire about their science fair topics of interest, and the classroom teachers help shape these interactions, assisting students face-to-face in a classroom learning environment. Recognizing that today's middle school students are growing up in a digital environment, a “virtual” science fair using internet technologies and digital tools is not daunting to them.

For NVSF, approximately 600 students, attending about 12 American International Schools in 12 countries, participate in their school science fair and the NVSF every year. About 400 pre-service teachers, mainly from the USA, serve as e-mentors.

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<sup>71</sup> NESA – Near East South Asia

<sup>72</sup> <http://www.nesacenter.org/page.cfm?p=380> (05-20-2015)

## Virtual science fair – Germany

The situation of science fairs in Germany is completely different: only very few schools conduct science fairs. The concept of a science fair is unknown to teachers and schools, so there is no tradition of science fairs in German schools. The author of this chapter served as an e-mentor for NVSF for two years, adopted the NVSF idea, and in 2009 established it in Germany where it is called “vsf-Germany” (Jonas-Ahrend, Fleischer 2010, Jonas-Ahrend 2011). About 200 students from three German schools participate each school year in the virtual science fair Germany. About 60 pre-service science teachers studying at university Duisburg-Essen and university Bochum serve as e-mentors, some twice a year for different schools. The team with the best virtual science fair project has the option to participate in the 2<sup>nd</sup> round of NVSF. About 50 international teams make it to the 2<sup>nd</sup> round, and 5 teams to the 3<sup>rd</sup> round (so called “Champions League”).

## Schedule of virtual science fair

The middle school students follow the same protocol as in a traditional science fair. While the students design and implement their science experiments at home or in the science classroom, the e-learning component is transparently embedded into the process: teams communicate about twice a week with their e-mentors with questions, post interim experiment reports, and share their digital photograph and video galleries. Simultaneously, the e-mentors have a unique opportunity to not only help collaborate on a research project, but also explore how the middle school student “thinks about science” in a rich exchange of knowledge.

Participating schools are working on their own given schedule. Normally, the entire virtual science fair process takes about two to three months. The actual Science Fair, the exhibition of the projects, takes place at the schools and is organized by them individually. At the end, a team of judges evaluates all projects and the presentation of the projects, and prizes are given to the best teams. For the participating schools the science fair is also a valuable project for public relations within the community, an event to bring together students, teachers, parents and the local industry and publicity in general.

The difference to the similar project “Jugend forscht”<sup>73</sup> in Germany is twofold: a) the embedded e-mentoring component and b) all students must participate, it is not a voluntary project.

## Communication tool: Moodle

Communication between students and e-mentors takes place only via Moodle. No other modes of communication are allowed. This is partly for security/privacy reasons, but also for monitoring purposes. The complete discussion is always watched by the teachers and university professors. Moodle is a user-friendly, web-based, interactive learning system. It is used at many schools, so the majority of students know how to use it. For the virtual science fair, a special

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<sup>73</sup> <http://www.jugend-forscht.de/> (20.05.2015)

course page was developed. It is used to structure the exchange of science inquiry activities and feedback between middle school students and e-mentors. Each team of students opens its own forum in this course. Students post their planned project and all questions they might have; e-mentors respond with appropriate feedback, scientific or methodological explanations, suggest websites and print references for further studies, etc. Furthermore, the course page is used to post the time schedule of the virtual science fair and messages from the teachers to students and e-mentors. All persons who belong to the course can read the discussions of every team, but only the e-mentors and the students themselves can write in their own forums.

### Analyses of the dialogs

All of the posted discussions between e-mentors and their teams have been analysed. The length of the dialogs is very different among the teams, however, the best teams have always had long dialogs. Very important is an honest and trusting relationships between e-mentors and their team. Even during introductory exchanges, the middle school students were excited about working with university students to plan and complete their science investigations. Many teams create and share a short video to explain their proposal for a science fair project. In their own reflective thinking, and in the given questionnaires, the e-mentoring pre-service teachers who participate state that they learn a lot about how to communicate with middle-school students as they attempt to focus their teams on their investigations, suggest project resources for background information, and explain complex science concepts effectively during data analysis. Some e-mentors are engaged in extensive online discussions with their teams during the project, and feedback from the middle school students indicates a positive outcome.

Although not required, most of the e-mentors mention their ages and indicate the kind of help they want to give with their science inquiry activities. The students discuss plans and dreams, ask personal questions, and identify strengths and weaknesses. Answering questions with details, sharing music and food preferences, suggests that these pre-service teachers are using discourse to create personal profiles and to establish personal connections with the students on their team. It is possible that the distance created by online, rather than face-to-face communication, fosters such honesty. Some e-mentors find the line between teacher, e-mentor, and friend somewhat fuzzy – a line that is especially difficult to negotiate for novice school teachers. Slowly they learn how to be supportive and understanding while maintaining their “authority-like” position. In almost all relationships between e-mentors and middle school students, the e-mentors develop a strong responsibility for their team and science project.

Some e-mentors had difficulties providing effective and useful feedback because their comments did not meet the students’ level of academic understanding. The comments were too scientific or too much in detail so that the middle school students could not easily understand them.

### Assessment tool for lab-reports

In a different study (Mishkin, Jonas-Ahrend, Wengrowicz, & Dori, 2013) an assessment tool for students' projects based on visual explanations and representations was developed. For this

purpose the visual items that appear in the 8<sup>th</sup> grade students' reports, which they wrote as part of the science fair in Leverkusen, Germany were used. Each product was summarized by a report that was analyzed in this research. The research was done on a sample of nine reports with 27 visualization items. The visualization assessment tool was developed by analyzing 27 visualization items from a descriptive-interpretive perspective, relying on previous work (Saar, 2007) and the cognitive theory of multimedia learning (Mayer, 2002). A rubric was created and its content was validated by three researchers who are experts in science education and science project assessing. The rubric has the following 8 categories (see Mishkin et al, 2013):

1. Visualization type: the visualization types were characterized into table, graph, picture, schema, flow chart, drawing, and other. This variable serves as a classification variable only, and there is no extra grading based on the type of the item.
2. Item title: examining whether there was a title or an explanation attached to the visual item and if so, what was its level of its precision and clarity
3. Relevance to the main text: examining whether the visual item is relevant to the main text of the subject matter in the place it was inserted, and if so, whether it is slightly, moderately, or highly relevant.
4. Contribution to the main text: examining whether the item contributes to understanding the text, and if so, whether this contribution is small, medium, or high.
5. Extent of coverage: examining the extent to which the visual item contains the information needed in the context where it appears and is adapted to what is described in the text.
6. Appearance: examining the extent to which the item looks attractive in terms of aesthetics, size, brightness, color selection, etc.
7. Science understanding levels: examining what levels of understanding are reflected by the visual item.
8. Societal added value: examine whether the visual item reflects added societal or affective value, such as team collaboration, active work, the expression of emotions.

The findings of the study show that the developed assessment tool provides a reliable instrument for assessing scientific works of students who express themselves by visual means. This tool can be used not only by researchers but also by teachers who need to evaluate students' understanding by assessing the visualization items that students developed as part of their science fair projects.

## Conclusions

Both, research and practice, show that the project virtual science fair not only engages diverse students in science learning in ways that students themselves found more powerful than the typical science classroom, but also teaches students 21st century skills. Most importantly, the science investigation broadens students' perspectives about scientific experimentation and exploration and the value of learning science in their own lives. The pre-service teachers experience an authentic context for teaching and improving students' science inquiry activity skills. Although e-mentors are initially overwhelmed by the talents and abilities of middle

school students, as the project progresses they become more competent in providing balanced feedback and learning which comments are perceived by their teams as most helpful.

The participating e-mentors also value the benefits of developing a meaningful relationship with their team of students. Developing an understanding for their students as people rather than just students, they learn how to detect and address clues that focus on academic and emotional difficulties while exploring the boundaries of teacher/friend and adult/authority at a comfortable distance. What is most significant is that pre-service teachers discover ways that technology-based strategies motivate students, experience network opportunities that require instructional assessment and decision making, and learn flexibility and patience.

All participants in the virtual science fair project are collaborative agents of change. The classroom teacher, university instructor, middle school students, and pre-service teachers work to develop a collaborative model for using technology to facilitate improved students' skills in science inquiry activities. Communication is and continues to be a critical factor in collaboration in the form of clear directions to e-mentors, consistent feedback to the middle school students, and effective pedagogical strategies for the classroom teacher and teacher educators. The embedding of e-learning tools into the traditional science fair fosters self and group-directed student inquiry and investigation. In this learning environment, scientific habits of mind are nurtured, and the tools and tactics for manipulation of information, discovery and sharing of science knowledge are highlighted. Students are encouraged to investigate science problems at multiple levels of complexity, thereby deepening their understanding of scientific concepts. The virtual science fair helps middle school science students develop and design more authentic, "real world" science investigations, reflect on skills used to manage their own learning, address misconceptions in their thinking, and categorize inquiries around themes and concepts.

Virtual science fairs are going where no science fair has gone before: Project-based learning combined with communication skills, pre-service teacher training combined with real school projects, local science fair in schools combined with competitive virtual science fairs in many countries around the world. There are not many projects like this in which one can truly feel the enthusiasm of all actors and indeed the pure spirit of the 21<sup>st</sup> century.

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## Students' matrix and attitude to the study of mother tongue for sustainable future oriented teaching in the Nigerian environment

*Wisdom Jude<sup>1</sup>, Maria Afangideh<sup>2</sup> & Ekaette Nyoho<sup>2</sup>*

<sup>1</sup>College of Education, Akwa Ibom State

<sup>2</sup>University of Uyo

Ibibio depicts both a language and her speakers. It constitutes the fourth largest ethnic group in Nigeria, after the three major ones – Hausa, Igbo and Yoruba (Ekere, 1987). The Ibibio people occupy fourteen Local Government Areas out of thirty-one in Akwa Ibom State of Nigeria and number about five million speakers (Afangideh, 2009). Ibibio is also one of the school subjects on the secondary school curriculum across the state.

Genetically, the Ibibio language belongs to the Benue-Congo sub-family which in turn belongs to the Niger-Congo family, one of the largest families of languages in Africa, according to Greenberg's (1963) classification. Further, it is noticeable that under this genetic classification, Ibibio still belongs to the lower cross group, a group of closely related languages to which Efik and Annang, with which Ibibio forms a cluster of dialects, also belong (Udofot, 1998 & Afangideh, 2009).

The poor performance as well as the very low enrolment of students in Ibibio really calls for concern. Students' poor participation or lack of interest is usually attributed to a number of students' matrix variables, which could be students' perception of career opportunities in Ibibio, parental influence on their choice of career, peer group influence, and gender differences as they affect the students' attitude to the study of Ibibio. Experience within the school system in Akwa Ibom State shows that during the Ibibio period in the school time-table, majority of the students leave the class while a few of them attend the class reluctantly. Many times the teachers of Ibibio are cajoled, laughed at and mocked by their colleagues.

Furthermore, career choice plays a very fundamental and significant role in the life of an individual; not only because it determines the pattern of income, but also because it affects the

individual's personality and concept in the society. In a nutshell, career is the totality of work one does in his/her life time, and it is person centred. It is of utmost importance to every individual as he/she prepares for the future career which is something very hard to decide, especially as his/her life will depend on it. Pawsey (2000) confirms that career is the totality of experience through which one learns about and prepares to engage in work as part of his way of living. ,

The importance of career aspiration in the life of a secondary school student anywhere in the world is paramount because an effective and happy life depends largely on the choice of a suitable and acceptable career. During adolescence, individuals begin to plan for their future career by considering a number of occupational options. Betz (2004) advised that counselors and educators are in a better position to assist students in their exploration of occupational options, help them seek career-related information, and obtain support for their career plans by developing a greater understanding of the learners' occupational career. The authors maintain that these career preferences may primarily be centered on interest.

Also, recent researches have shown that interest continues to play a primary role in the selection and rejection of occupation throughout childhood (Kelso, 1999; Tarrant 2002). Equally, it can rightly be observed that although children's initial career preferences may have consisted of "fantasy" choices, adolescents may begin to narrow their occupational choices as they begin a sense of what is "realistic" as a future occupation (Ginzberg, 2000).

Additionally, peer pressure is an important factor that influences students' attitude in the study of Ibibio language in Akwa Ibom State of Nigeria. The term "peer pressure" is often used to describe an instance where an individual feels pressurized into changing his/her behaviour to match that of his/her peers. Tarrant (2002) views peer group as an important part of socialization, which allows children to escape the direct supervision of adults. Among peers according to Odunuke (2002), children learn to form relationships on their own, and have the chance to discuss interests like clothing and drugs that adults may not share with them. The peer group therefore has tremendous influence on the adolescents' pattern of behaviour especially on their interests, attitudes, value system, emotions and interaction patterns (Ekan, 2008).

Equally, McMahon and Patton (2006) noted that because every child in the peer group has equal status with the other children, there exists an atmosphere of freedom in which each child easily learns the way of the other members. During adolescence, peer group association begins to replace the family as a significant point. Peer groups are particularly important in the transition into adulthood. It is an alternative venue for adolescents to get rid of adult control. The Ibibio secondary school learner is faced with the realities of these manifestations as he battles with developmental changes. Datta (2006) confirms that the peer group as a sub-social system can be found in the village, school community, church and the school system. It has its own sub-cultural language, which is not intelligible to outsiders. One child can be a member of more than one peer group owing to a variety of environmental and social activities, but each group is a world of its own and has its own objectives and goals (Ibia, 2006). It is therefore not strange to find Ibibio learners showing reluctance on the study of Ibibio language, when as a matter of fact, their peers do not approve of its study.

Consequently, Maurice (2008) confirmed peer group influence on the academic performance of boys and girls, using a sample of 500 students (250 boys and 250 girls). The study revealed a significant influence of peer pressure on the academic performance of boys compared to their female counterparts. The boys whose peers influenced them positively formed reading groups or study groups which led to more positive academic achievement than the girls.

Parents serve as major influence in the lives of their children. Alika and Egbochukwu (2009) stated that of the factors that influence career choice processes family members, particularly parents, are the most influential determinants of career plans, occupational aspirations and expectations. Bornstein (2002) asserts that even though schools have the resources with which to meet young peoples' career guidance needs, neither teachers nor counselors can replace the influence parents have on their son's and daughters' career plans. Hoover-Dempsey and Sandler (2005) stated that although parents acknowledge their roles and attempt to support parental messages contain an underlying message of "do not make the same mistakes I made." These interactions may influence adolescents and young adults to select or pursue particular occupations.

Tella (2007) opined that jobs were a matter of destiny, and children entered the same type of occupation as their parents and grandparents. Today, parents are directly and indirectly influential in what careers their children pursue. This influence begins at an early age, when parents, sometimes, indirectly model a particular behaviour and attitudes in relation to their profession before their children. This will of course have a positive or negative influence on the children. It goes to confirm that parental control and the academic achievement of children in career selection plays a great role in students' attitude and acceptance of the school subjects (Maceoby, 2000). From the argument so far, it can be inferred that since Ibibio is a school subject, it stands the chance of being accepted or rejected by learners.

In addition, gender exerts a powerful influence on career choice. Gender refers to the behavioural, cultural or psychological traits typically associated with one's sex. It also refers to socially constructed roles and socially learnt behaviour and expectations associated with males and females (Halpern, 2000). Gender role is one of the earliest and potentially one of the most powerful forms of socialization. Watson (2002) asserts that young people tend to perceive a narrow gender-based range of future options, particularly in relations to education and career opportunities. For example, using the U. S. Bureau of Labour statistics information on occupation held by sex of respondents, Federation of African Women Educationists (FAWE) (1997) noted that the percentage of women in the labour force in certain occupations such as landscapers (8.6% female) and auto mechanics (10.6% females), are almost totally filled by males.

Also at a conference organized by the Federation of African Women Educationists, it was acknowledged that in many African states, girls are still restricted to studying what is perceived to be "soft option" subjects, which have limited access to scientific and technical disciplines in institutions of higher learning. This shows disparity in perception of career aspirations among male and female students (Helwig, 2002). Considering the above submissions, the researchers assert that students' gender obviously affect the attitude of students toward the study of their mother tongue (Ibibio) in public secondary schools. Therefore this study investigated students'

matrix and their attitude towards the study of Ibibio at the public secondary schools in a typical Nigerian environment.

### Objectives of the study

The study set out to:

1. Asses the relationship between students' perception of career opportunities in Ibibio and students' attitude in the study of Ibibio in public secondary schools in Uyo.
2. Determine the relationship between peer group influence and students' attitude in the study of Ibibio
3. Examine the relationship between parental influence and students' attitude in the study of Ibibio in public secondary schools.
4. Ascertain the difference between gender and students' attitude in the study of Ibibio.

### Hypotheses

The following hypotheses were raised to guide the study:

1. There is no significant relationship between students' perception of career opportunities and students' attitude in the study of Ibibio at the secondary school level.
2. There is no significant relationship between peer pressure and students' attitude in the study of Ibibio.
3. There is no significant relationship between parental influence and students' attitude in the study of Ibibio.
4. There is no significant difference in the gender of students and their attitude in the study of Ibibio.

### Method

The study employed the ex-post facto research design which is concerned with finding, describing and interpreting "what is." The researchers chose this design because it is concerned with processes that are going on, and effects that are being felt.

#### *Population*

The population of the study consisted of all the students in Junior Secondary Two classes of the 14 public secondary schools in Uyo Local Government Area. Data obtained from the Akwa Ibom State Secondary Education Board, Research and Statistics Division for the 2013/2014 Academic Session indicated that there are five thousand, two hundred and eight (5,208) students in the junior secondary two classes in the public schools under study.

#### *Sample and sampling technique*

The representative sample of 521 JS II students were drawn from 14 public secondary schools in Uyo Local Government Area through stratified and proportional sampling techniques. Ten (10%) of the schools were randomly of the institutions. Respondents were stratified into 250 males and 271 females giving a total of 521.

## The instrument

The instrument used was a 25 – item questionnaire called students’ Matrix and Students’ Attitude Questionnaire (SMSAQ); it was measured in a four-point Likert scale. The instrument had three sections -A,B and C. Section A had items on personal data of the respondents regarding the names of their school, location, class, age and gender. Section B elicited information on respondents’ perception of career opportunities, peer group influence, and parental influence; while section C measured attitude to the study of Ibibio. Each response was given a degree of scores which ranged from SA - strongly Agree, A – Agree, D – Disagree, to SD – Strongly Disagree.

### *Validity of the instrument*

During face-validation, the 25 items in the questionnaire were scrutinized in terms of relevance, content, clarity and difficulty level.

### *Reliability of the instrument*

The instrument was administered to 30 students and after 2 weeks, the same set of questionnaire was administered to the same students; a reliability split-half test. The result indicated that the instrument was reliable enough to be used for the study.

### *Administration of the instrument*

The researchers, along with the Ibibio subject teacher used the regular periods of the Ibibio class and administered the questionnaire to the respondents. At the end of the field work, the researchers scored the instrument.

### *Data analysis*

Data were collated and analyzed using Pearson Product Moment Correlation Analysis and Independent t-test statistics between the independent and dependent variables.

## Results

In this section, results of data analysis based on the four hypotheses that guided the study are presented in four tables and comments are made under each table.

### *Hypothesis 1:*

There is no significant relationship between students’ perception of career opportunities and students’ attitude in the study of Ibibio at the secondary school level. It can be observed on Table 1 that the r-calculated of 0.089 is greater than the critical value of 0.169, at the degree of freedom implies that there is a significant relationship between students’ perception of career opportunities and their attitude in the study of Ibibio

### *Hypothesis 2:*

There is no significant relationship between peer group pressure an students’ attitude in the study of Ibibio. As shown in Table 2, the calculated correlation co-efficient of 0.89 exceeded the critical table value of 0.0169 at 0.05 significant level and 519 degree of freedom. This shows and

proves that peer group influence is a significant deciding factor on students' attitude in the study of Ibibio in Akwa Ibom State of Nigeria.

*Table 1.* Analysis of students' perception of career opportunities and attitude in the study of Ibibio

Variable	$\Sigma x$	$\Sigma xy$	$\Sigma x^2$	r.cal	r.crit	Decision
	$\Sigma y$	$\Sigma y^2$				
Students' perception of career opportunities and students' attitude in the study of Ibibio	1675	289768	582907	0.89	0.169	S*
	930	194762				

\*S = significant, Df = 519, 0.05 = 0.05 = level of significance

*Table 2.* Peer group pressure and students' attitude in the study of Ibibio

Variable	$\Sigma x$	$\Sigma xy$	$\Sigma x^2$	r.cal	r.crit	Decision
	$\Sigma y$	$\Sigma y^2$				
Peer group influence and students' attitude in the study of Ibibio	1702	286640	600102	0.89	0.169	S*
	903	1838				

\*S = significant, Df = 519, 0.05 + Level of significance

### *Hypothesis 3:*

There is no significant relationship between parental influence and students' attitude in the study of Ibibio. In Table 3, it is observed the calculated r-value of 0.861 exceeded the critical point or table value of 0.169 at the degree of freedom of 519, and at 0.05 significant level. This implies that parents are the most significant influential determinant of their children's career plans.

*Table 3.* Parental influence and students' attitude in the study of Ibibio

Variable	$\Sigma x$	$\Sigma xy$	$\Sigma x^2$	r.cal	r.crit	Decision
	$\Sigma y$	$\Sigma y^2$				
Parental influence and students' Attitude in the study of Ibibio	1452	272816	659253	0.861	0.169	S*
	1152	152320				

\*S = significant, Df = 519, 0.05 + Level of significance

*Hypothesis 4:*

There is no significant difference in the gender of students and their attitude in the study of Ibibio. In Table 4, the calculated t-value of 5.64 exceeded the critical table value of 1.94, at the degree of freedom of 419. This implies that there is a significant difference between gender and the attitude of the students in the study of Ibibio.

Table 4. Analysis of responses in students' gender and their attitude in the study of Ibibio

Variable	$\bar{x}$	SD	t-cal	t-crit	Df
Male	31	12.3			
Female	40	14.5	5.64	1.96	419

### Discussion of findings

The intention of the study was to examine students' matrix and their attitude in the study of Ibibio for sustainable future oriented teaching in the Nigerian environment. The researchers examined students' perception of career opportunities, peer group pressure, parental influence and gender of the learners along with their attitude in the study of Ibibio in Akwa Ibom State of Nigeria.

The investigators found out that there is a significant relationship between students' perception of career opportunities and their attitude towards the study of Ibibio in Uyo Local Government Area. This is in line with the findings of Kelso (1999) and Tarrant (2001) who concluded in their different studies that students' perception and interest have a significant influence on the attitude of the students in career choice.

Also, the researchers found out that peer group pressure has a significant influence on students' attitude in the study of Ibibio. This is in line with the findings of Odunukwe (2002), Ibia (2006), Maurice (2008) and Ekan (2008) that peer pressure influences students' vocational interest, beliefs, pattern of behaviour especially in their choice of value system, including the choice of subjects leading to their career.

Furthermore, the findings of this present study revealed that, there is a significant relationship between parental influence and students' attitude in the study of Ibibio. The findings are in agreement with the initial discovery of Alike and Egbochukwa (2009) that parents are the most influential determinants of career plans, occupational aspirations and expectations. Equally, the findings of Tella (2003) and Cassar (2004) are in support of the findings of the current study that the education of our children nowadays is becoming more and more dependent upon what parents want their children to achieve rather than on the children's abilities and efforts.

Finally, the investigators in their findings discovered that gender exerts a powerful influence on career choice of secondary school students studying Ibibio in Akwa Ibom State of Nigeria. This is in agreement with the initial discovery of FAWE (1997) and Watson (2002) that male adolescents aspire to higher level career than female adolescents which is due to early socialization, whereby boys generally perceive that school activities were beneficial in relation to career planning. It is obvious that part of the notion may come from the routine socialization

of females who are constantly and consistently exposed to messages that their life evolve around caring for a family, while their career plans are secondary.

## Conclusion

The study concluded that students' matrix variables such as their perception of career opportunities, peer group pressure, parental influence and gender truly shape the attitude of the students in the study of Ibibio in public schools in Akwa Ibom State of Nigeria.

## Recommendations

1. The Nigeria Union of Teachers (NUT) should provide regular annual seminar to all teachers, counselors etc. to assist students in their exploration of occupational options to seek career related information, and obtain support for their career plans.
2. School principals and government ministries of education in conjunction with private and public sector should promote the need for positive perception of career opportunities in Ibibio.
3. Adequate learning facilities like Ibibio software tools should be provided in all schools by government for the students' effective use.
4. Ibibio as a subject should be integrated into the current economic, political and democratic reforms of the federal government of Nigeria by re-visiting the National Language Policy. The policy should be reviewed to make for the use of indigenous languages in our National Assembly and State Assemblies.
5. Students in most schools at times stereotype Ibibio as a "females only subject" which has nothing to do with the males. Such a misconception and negative attitude should be discouraged; the Government of Akwa Ibom State Ministry of Education Board should make Ibibio a core subject to be offered in secondary schools.

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## The attitudes of Slovenian primary school teachers about the use of ICT tools in education

*Melita Levpušček & Urška Čuk*

University of Ljubljana

The development of information and communication technology (ICT) in the last thirty years has changed the method of information transfer, resulting in it becoming easier, faster and more efficient. Technological innovations in the domain of ICT devices have led to changes in people's life style, way of thinking and communication. ICT has influenced many aspects of society, including education, where teachers and students have been exposed to new technologies in the classroom. Recent studies showed that the application of new technologies in the classroom is essential if schools wish to support the optimal functioning of students in the information society. With the use of ICT, students acquire skills for searching and evaluating information, cooperative and communication skills and problem solving skills (Bingimlas, 2009; Drent & Meelissen, 2007). It has become clear that the traditional ways of teaching are no longer appropriate because they alone do not prepare students for optimal functioning and productivity in modern workplaces (Yelland, 2001). During the last decade, the implementation of ICT in education has become one of the main priorities in school curricula of EU countries. In some countries, schools have included ICT in the curriculum and have already reached the stage of effective and appropriate use of ICT in classrooms. In other countries, where they are still in the early stages of introducing ICT in classrooms, schools have experienced some improvement in the learning process. Nevertheless, the new educational technologies haven't brought significant progress in teaching and learning yet (Brečko & Vehovar, 2008).

The use of ICT in schools was demonstrated in a study of the European Commission (European Commission, 2013). The availability of a satisfactory Internet connection and the availability of ICT devices in Slovenian schools were found to be within the European average.

Furthermore, the study showed that Slovenia had more teachers who are formally trained to work with ICT than other EU Member States. Despite the satisfactory levels of technical equipment and high teacher qualifications, the effective use of ICT in classrooms is still low. Overall utilization of computer technology in schools is rather average (Gerlič, 2011). Utilization also varies according to the age of students. The use of ICT increased with grade: in the fourth grade, the percentage of teachers who used ICT in more than a quarter of lessons was 27 %. In the eighth grade there were 40 %, and in the second year of upper secondary school 51 % of teachers who used ICT in more than a quarter of lessons (European Commission, 2013).

Recent studies (e.g., Albirini, 2006) have shown that successful implementation of new educational technologies into the learning process depend largely on teachers' attitudes which serve as the most important factor in promoting or inhibiting the use of ICT in education. The IEA Second Information Technology in Education Study 2006 (SITES 2006) focused on the role of ICT in teaching and learning in mathematics and science classrooms in 22 participating education systems (SITES 2006 Technical Report, 2009). In the study, teachers who used ICT in teaching reported on the impact of ICT use on students. The Slovenian teachers most positively assessed the impact of ICT on learning motivation, comprehension of learning content, the acquisition of ICT skills, the ability to learn at one's own pace, and improved data handling (Brečko & Vehovar, 2008). The study also showed that higher teacher ICT literacy was associated with greater teacher use of ICT in teaching. Similarly, European research (European Commission, 2013) indicated that the vast majority of Slovenian principals and teachers believe that the use of ICT has a positive impact on students, their motivation, achievement and cognitive development.

Development of positive attitudes regarding the use of ICT in teaching is an important factor in introducing of ICT in the classroom (Albirini, 2006). We thus decided to explore the attitudes of primary school teachers regarding the use of ICT in education and to find out how these attitudes are associated with the practical application of ICT in the learning process and in teachers' private lives. We also focused on teachers' use of two specific IC tools: the virtual classroom and interactive whiteboard.

## Method

### *Participants*

The participants were Slovenian primary school teachers (n=90). A total 85 of them were female teachers. On average, they worked as teachers for 15.46 years. There were 34 class teachers (lower primary school, Grades 1-5), 31 course teachers (upper primary school, Grades 6-9) and 25 other teachers (teachers of Physical Education, teachers in after-school program, and teachers of students with special needs).

### *Instrument*

*Attitudes about teachers' use of ICT in private and professional life* (Čuk, 2015).

The questionnaire has four parts: (1) demographic's questions: age, gender, domain of teaching and years of teaching, (2) questions about the frequency and ways of personal and professional use of different ICT tools, (3) general attitudes about the use of ICT tools (11 items,

5-point Likert scale), and (4) teacher attitudes about the use of two specific IC tools: virtual classroom (12 items, 5-point Likert scale) and interactive whiteboard (13 items, 5-point Likert scale). Teachers who reported that they used an interactive whiteboard in the past school year were asked to give an additional description of the ways of their practical application in teaching.

### Procedure

The questionnaire was administered via a Web interface for the production and transmission of the questionnaires, which is located on the website [www.lka.si](http://www.lka.si). The link to the questionnaire was posted on Facebook and Twitter, or transmitted via e-mail to various contacts. In addition to the request to fill-in the questionnaire we also asked the recipient to forward the link to the questionnaire to other target participants. Our target group consisted primary school teachers in Slovenia (Grades 1-9), which was clearly defined in the introduction to the description of the questionnaire.

### Results

#### *The use of ICT in teachers' private and professional lives*

First, we present the results on the frequency and models of personal and professional use of different ICT tools.

*Table 1.* The frequency of ICT use in private life

	Every day		Some days a week		Some days a month		Some days a year		Never	
	f	%	f	%	f	%	f	%	f	%
Computer without Internet	36	40.0	13	14.4	6	6.7	15	16.7	16	17.8
Computer with Internet	79	87.9	10	11.1	0	0	0	0	0	0
Smart phone	32	35.6	1	1.1	5	5.6	3	3.3	47	52.2
Tablet	6	6.7	3	3.3	5	5.6	6	6.7	66	73.3
Digital camera	1	1.1	17	18.9	39	43.3	28	31.1	4	4.4

Table 1 shows that most teachers used computers in their private lives on a daily basis. About one third of teachers in the sample used smart phones while about half of teachers never used them. The results showed that teachers used digital cameras quite rarely, while most teachers never used tablets in their private life. When we asked teachers about the purposes of ICT use in their private lives, the most frequent answers («every day use») were: information searches (47,8%), use of social networks (30%) and listening to music (22%). A total of 72.2% of the teachers reported that they never created or edited their own website or blog, 58.9 % of them never took part in audio or video conferences, and 42.2 % of them were never active in Internet forums.

As shown in Table 2, the most frequently reported ICT facilities available in the participants' schools were: digital camera, classroom with computers, computer with Internet access in teacher's office and computer with projector in the classroom. About 60 % of the teachers reported about the availability of using interactive whiteboards or bringing a portable projector to the classroom. The tablet facility was rare.

Table 2. The frequency of teachers with available ICT facilities in the school

	f	%
Digital camera	82	91.1
Classroom with computers	77	85.6
Computer with Internet access in teacher's office	74	82.2
Computer with projector in the classroom	66	73.3
Interactive whiteboard	57	63.3
Portable projector	54	60.0
Digital video camera	36	40.0
Tablets for smaller groups of students	10	11.1
Tablet for each student	3	3.3

Table 3. The frequency of ICT use in teaching

	Every day		Some days a week		Some days a month		Some days a year		Never	
	f	%	f	%	f	%	f	%	f	%
Power Point presentations	10	11.1	20	22.2	34	37.8	23	25.6	3	3.3
Interactive whiteboard	12	13.3	8	8.9	8	8.9	19	21.1	43	47.8
Video with educational content	2	2.2	18	20.0	41	45.6	23	25.6	6	6.7
Virtual classroom	5	5.6	12	13.3	20	22.2	29	32.2	22	24.4
E-textbook or e-worksheets	12	13.3	15	16.7	22	24.4	22	24.4	18	20.0
Searching for information on Internet	40	44.4	27	30.0	14	15.6	7	7.8	2	2.2
E-mark book	21	23.3	8	8.9	9	10.0	3	3.3	49	54.4
E-class record book	30	33.3	1	0	0	1.1	2	2.2	57	63.3

Table 3 shows the frequency of ICT use in teaching. The teachers mostly used ICT in classrooms for Internet information searching. About one third of the teachers sampled used Power Point presentations every day or some days a week. Almost half of the teachers used video with educational content some days a month. About a quarter of the teachers never used virtual classroom and one fifth of them never used e-textbook or e-worksheets. The use of e-materials was rather occasional. More than half of teachers sampled never used e-mark book to record students grades or e-class record book which serves for administrative purposes (e.g., to enter absent students in a class).

*Teachers' attitudes regarding the use of ICT tools*

We present the results regarding teachers' general attitudes about the use of ICT tools and teacher attitudes regarding the use of virtual classroom and interactive whiteboard.

*Table 4.* Means and SDs for general attitudes items regarding the use of ICT tools

	M	SD
The costs of the ICT acquisition are insignificant in comparison with its effectiveness.	3.34	1.18
An interactive whiteboard was installed in my classroom during summer holidays. I'd be interested in attending training and the use an interactive whiteboard in teaching.	4.21	1.20
Every teacher should be well acquainted with and use at least basic ICT (computer, projector) resources in teaching.	4.63	.69
The use of ICT makes my school work easier.	4.39	.83
The use of ICT is stressful for me.	2.26	1.15
The use of ICT is necessary in teaching and learning because it prepares students for their future life.	3.54	1.11
ICT distracts students from effective learning.	2.59	1.09
In general, I see more advantages than disadvantages in ICT use in teaching.	3.97	1.01
The use of ICT allows the display of several modalities at the same time (sound, image, text, etc.) which has a positive effect on learning.	4.31	0.79
If e-materials are available, I would be prepared to use them.	4.49	.71
The use of Web materials is suitable, because they contain many informative elements.	4.20	.72

*Note.* 1 = completely disagree, 5 = completely agree.

As seen in Table 4, most teachers evaluated the items positively, meaning that they had positive attitudes regarding the use of ICT in teaching. On average, teachers agree or completely agree that every teacher should be well acquainted with and use at least basic ICT resources in teaching. They also largely agreed that the use of ICT made their school work easier and that they were willing to use e-materials for their courses. They also believed that ICT has a positive effect on learning and saw more advantages than disadvantages in its use in teaching. On average, they do not consider the use of ICT as a stressful experience and do not believe that ICT distracts students from effective learning.

In further analysis, there was a significant correlation between the frequency of ICT use in teachers' private lives and teachers' general attitudes (total score) about the use of ICT tools,  $r = .39, p < .001$ . There was also a significant and positive correlation between the frequency of ICT use in teaching and the teachers' general attitudes (total score) regarding the use of ICT tools in teaching,  $r = .42, p < .001$ .

Table 5. Means, SDs, and differences between the two groups (users and non-users) in their general attitudes on the use of virtual classroom

	M	SD	t
Virtual classrooms enable better communication between teacher and students.	3.43	.972	.97
Virtual classrooms require less work load than traditional ways of learning.	2.99	.966	1.23
I do not feel competent to use a virtual classroom because it requires a lot of computer knowledge.	2.36	1.193	-1.95
Using virtual classrooms in teaching is time consuming.	2.56	1.061	-1.63
Virtual classrooms encourage students to work outside of school.	3.63	1.065	2.05*
Virtual classrooms enable teachers to have a better control over students' schoolwork.	3.43	1.028	.24
Virtual classrooms support independent student work.	3.83	.972	3.34**
If my principal wanted me to use virtual classroom I would use it, otherwise I'd rather not.	2.59	1.315	-2.94**
Virtual classrooms support cooperative learning.	3.31	.990	2.53*
Preparation of virtual classroom require a lot of efforts, that's why I prefer to use traditional methods of teaching.	2.77	1.237	-2.88**
I would advise other teachers to use virtual classroom.	3.54	.973	4.06***
Students are better informed about the learning process when virtual classrooms are used.	3.40	.934	3.28**

Note. 1 = completely disagree, 5 = completely agree. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

In Table 5 are descriptive statistics for items regarding attitudes on the use of virtual classroom. On average, the attitudes regarding the use of virtual classroom were positive. Teachers mostly agreed that virtual classrooms enabled better communication between a teacher and a students, that the use of virtual classrooms supported independent work of students and encouraged them to work outside of school. Teachers felt that the use of virtual classroom enabled better control over students' schoolwork, supported cooperative learning and enabled students a better information flow. Most teachers felt competent to use a virtual classroom and did not consider it time consuming. They also reported that their decision to use virtual classroom was not affected by the pressure of school leadership.

A significant difference between the two groups (users ( $n = 32$ ) and nonusers ( $n = 58$ )) was observed with regard to their total score regarding the general attitudes on the use of virtual classrooms. Teachers who used virtual classroom in the past school year displayed more positive attitudes toward the use of virtual classrooms ( $M = 44.90$ ,  $SD = 7.01$ ) than teachers who had not used virtual classroom in the past school year ( $M = 39.36$ ,  $SD = 5.98$ ),  $t(88) = 3.96$ ,  $p < .001$ . More specifically, users of virtual classroom displayed more positive attitudes than non-users regarding the capability of virtual classrooms to enable better communication between teacher and students, encourage students to work outside of school, and support independent and cooperative student work. Users also displayed higher score on the item »I

would advise other teachers to use virtual classroom« than non-users. Non-users, on the other hand thought that they should put a lot of effort in the preparation of virtual classrooms and expressed less motivation to use them (see Table 5).

*Table 6.* Means, SDs, and differences between the two groups (users and non-users) regarding their general attitudes on the use of interactive whiteboard

	M	SD	t
Interactive whiteboards enable better communication between teacher and students.	3.03	1.31	-.55
I do not use interactive whiteboard because it means less opportunity for active students learning.	1.78	1.04	-3.06**
Interactive whiteboards enable better demonstration of learning content.	4.25	.92	1.48
Interactive whiteboards require a lot of computer knowledge. That's why I'd rather use classic blackboard.	1.91	1.17	-1.84
Using interactive whiteboards in teaching is time consuming.	2.16	1.22	-1.90
Students perceive work with interactive whiteboards more as play and less as learning.	2.91	1.38	-1.34
Interactive whiteboards allow several modalities to be displayed at the same time (sound, image, text...), which has a positive effect on learning.	4.38	.71	.275**
Interactive whiteboards support cooperative learning.	3.38	1.01	.07
Interactive whiteboards enable teachers to have better control over student cooperation in the classroom.	3.34	.97	1.35
Interactive whiteboards supports independent student work.	3.09	1.15	-.21
If my principal wanted me to use interactive whiteboard, I would use it, otherwise rather not.	1.97	1.20	-1.91
I would advise other teachers to use an interactive whiteboard.	4.19	1.06	2.52**
The use of interactive whiteboards gives teachers the opportunity to adapt their teaching to individual student needs.	3.97	.97	3.17**

*Note.* 1 = completely disagree, 5 = completely agree. \*\* $p < .01$ .

As seen in Table 6, teachers on average displayed positive attitudes regarding the use of interactive whiteboard. Teachers largely believed that interactive whiteboard had positive effect on learning because it simultaneously uses multiple modalities. According to teachers' opinion, interactive whiteboards enable better demonstration of learning content and allow teaching to be adapted to individual student needs. On average, teachers did not agree with the statement that interactive whiteboard meant less opportunity for active learning. Teachers, on average, felt competent enough to use them. They would recommend other teachers to use interactive whiteboard. On the other hand, teachers were rather indecisive about the role of interactive whiteboard in facilitating better communication with students. Similarly, their attitude

regarding students' perceptions of the interactive whiteboard's role in learning process was neither positive nor negative.

We calculated the differences between the two groups (users and non-users) with regard to their general attitudes on the use of interactive whiteboard in the classroom. A significant difference between the two groups (users ( $n = 32$ ) and non-users ( $n = 58$ )) was observed in terms of their total score on general attitudes regarding the use of interactive whiteboards. Teachers who used an interactive whiteboard in the past school year displayed more positive attitudes toward the use of interactive whiteboard ( $M = 48.91$ ,  $SD = 7.97$ ) than teachers who did not use interactive whiteboard in the past school year ( $M = 44.41$ ,  $SD = 6.32$ ),  $t(88) = 2.94$ ,  $p < .01$ . Users more so than non-users believed that interactive whiteboards provide an opportunity to display several modalities at the same time, which has a positive effect on learning. They were also more convinced that interactive whiteboards gave them an opportunity to adapt teaching to individual student needs. They were also willing to advise other teachers to use interactive whiteboards, more so than non-users. Non-users, on the other hand, saw less opportunity for active student learning when using interactive whiteboards than users.

The teachers who reported that they had used an interactive whiteboard in the past school year ( $n = 32$ ) answered the open questions about its practical use in teaching. Mostly, they used the following functions of interactive whiteboard: to classify words, images and videos ( $f = 10$ ), to play didactic games (e.g., memory;  $f = 6$ ), to cover and uncover the text or images ( $f = 5$ ), to involve students in writing or solving problems in front of the classroom ( $f = 5$ ), to show (e.g. natural) processes in motion ( $f = 3$ ), to play quizzes and to solve riddles and crosswords ( $f = 2$ ).

## Conclusion

In general, teachers in our study expressed positive attitudes regarding the use of ICT in teaching. They mostly used ICT in classrooms for Internet information searching while other ICT facilities (e.g., virtual classroom, interactive whiteboard) and e-materials (e.g., e-textbook) were quite rarely used in the teaching process. Despite of this fact, the teachers expressed positive attitudes regarding the use of virtual classroom and interactive whiteboards. Teachers were aware of the importance of educational technology in modern society, which is probably one of the reasons for their positive attitudes. Another reason for positive attitudes was their frequent utilization of ICT in private lives, a relationship that was already found by Birgin et al. (2010). Research showed that it is not enough just to provide training opportunities to work with ICT, but teachers should also have the opportunity to work with ICT before using it in the classrooms (Albirini, 2006; Martinovic & Zhang, 2013). Furthermore, teachers reported on high availability of ICT facilities in their schools, which is consistent with the finding of the European Commission (2013) that Slovenian schools are well equipped with educational technology. However, only one third of the teachers reported that they had already used virtual classrooms and interactive whiteboards in teaching. Although the attitudes towards the use of the two ICT tools were positive, the teachers who used them mentioned only certain elements or functions of the tools that they applied in the classroom. It is important that teachers remain critical and thoughtful about the use of ICT tools in teaching; however, they should also make greater use of the different functions that ICT tools offer and create more e-activities for

students that support active, collaborative and deep learning. We found a positive correlation between previous experience of teaching with ICT and positive attitudes towards the use of ICT in teaching. This is important information for systemic changes in the deployment of ICT in education. During the introduction of new technological gadgets the teachers should be given an adequate number of possibilities for their direct use in the classroom, already from the start. It is also important that ICT does not become merely a supplement to existing teaching methods. Teachers should not only learn technical skills how to use ICT tools, but should also learn and explore new ways of teaching and learning that successfully incorporate educational technologies, like blended learning (Albirini, 2006). Accordingly, they should face a challenge of systematically incorporating the use of omnipresent smart phones, which distract today's wired generations from learning, into classroom activities (Bjornsen, submitted).

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## Video technology as pedagogy: Past teacher education students speak to current students through performed research

*Michelle Ludecke*

Deakin University

This chapter reports the use of video representations of first-year teachers' experiences in teacher education workshops that focus on the transition to teaching. My work as a teacher educator in curriculum and pedagogy core units often entails preparing pre-service teachers for moments of transition such as developing a professional portfolio, job applications, and interviews. These highly visible moments where pre-service teachers put themselves and their views 'out there' are liminal moments signifying change and development. It can be a positive time of looking back and seeing how their teacher identity has transformed over time, and it can also be a period fraught with anxiety and resistance to new ideas, generally brought on by the notion that they are alone in these feelings.

The aim of this research was to expand my own pedagogical practices in order to assist pre-service teachers in transition to improve their practices, by investigating whether video representations of first-year teachers might help pre-service teachers primarily to understand identity-making as a fluid and ever-changing practice. This research project has its origin in my doctoral research, investigating the experiences of beginning teachers, and the transformation of their identity in their first year of teaching. My doctorate<sup>76</sup> centred on the research participants' firsts as epiphanic moments of identity transformation. A theatre-based research approach to representing the participants' experiences was employed, culminating in a performance titled 'The First Time'<sup>77</sup>. The success of 'The First Time' prompted the consideration of its use as a provocation in teacher education workshops. Pre-service teachers in the audience of the live performance raised notions of the sustainability of the work in video

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*Author contact:* michelle.ludecke@deakin.edu.au

<sup>76</sup> <https://dro.deakin.edu.au/view/DU:30057355>

<sup>77</sup> [www.youtube.com/playlist?list=PLB1ED0FDEF2AA8836](http://www.youtube.com/playlist?list=PLB1ED0FDEF2AA8836)

form. As such a program was developed and trialled from July to September 2013 to explore each of the themes raised in 'The First Time' and investigate how graduate teachers could 'speak to' current pre-service teachers in order to prepare them to 'teach for tomorrow'. The notion of 'teach for tomorrow' in this instance was to collate lessons from the past to inform the present, and encourage pre-service teachers to take the knowledge they develop into the future. It draws on the idea of looking back in order to look forward.

I noticed that pre-service teachers in transition to in-service teaching often demonstrated signs of wash out, disengagement from seminars, and showed a heightened focus on self-sourced teaching related activities that were more 'real' and therefore perceived as more worthy. These pre-service teachers in transition often displayed resistance to new ideas such as 'doing drama', along with a heightened articulation of their perception of the theory-practice divide. Pre-service teachers also demonstrated early signs of transition shock and wash out, which were magnified in the experiences of the graduate teachers in my doctoral research.

Much has been written about the destabilising effect of shock so prevalent in the current context of teaching. Status and belonging remain central to beginning teachers' identity work. The importance of induction, mentoring, and an understanding that teacher education takes place on a continuum from pre-service to in-service teaching now emerges in relation to survival and liminal discourses. Survival discourses concern wash out and transition shock. Wash-out (Zeichner & Tabachnik, 1981) describes how educational notions developed during pre-service teacher education are 'washed out' during professional experiences. Veenman (1984) points to the problems teachers experience once they have left teacher education. Similar indications of a lack of transfer from teacher education to practice continued to be discussed by Feiman-Nemser (1990), Wideen, Mayer-Smith, and Moon (1998), and Shoval, Erlich, and Fejgin (2010, p. 86) reiterate the long held belief that beginning teachers are expected to act as seasoned veterans and take full responsibility for teaching, despite the limited resources they possess in terms of experience. Beginning teachers under stress may experience a wash-out effect of the principles and skills acquired during their teacher education (Zeichner & Tabachnik, 1981).

Pre-service teachers experience an aspect of transition shock in reaction to the overwhelming complexity of applying for jobs. An individual upon encountering the unfamiliar can experience culture/practice/reality/transition shock. In more recent literature (Shoval et al., 2010; Stokking, Leenders, de Jong, & van Tartwijk, 2003) shock is described as an abrupt transition that hinders the beginner's ability to find the mental strength to deal with a new situation. This intense period of reflection and adjustment can feel like an aside to the main issue of teaching for the beginning teacher. However, this period of reflection and adjustment is recognised as an important aspect of socialisation and acceptance. Praxis, practice and transition shock refer to teachers' confrontation of the realities and responsibilities of being a teacher that puts their beliefs and ideas about teaching to the test. Shock challenges some beliefs, and confirms others in relation to induction into the profession (Kelchtermans & Ballet, 2002, p. 105), positioning the beginning teacher in a liminal space.

Liminal discourses surround beginning teachers in transition. Often where theory and practice would ideally come together, such understandings are often washed out, contributing to the notion of a theory-practice divide. Such periods of uncertainty are highlighted as both

beneficial and challenging. For example, Sinner (2012) highlights how uncertainty can define experiences in order to use these to reconsider the scope of lived experiences that can occur in teacher education. While uncertainty can define teachers' perceptions of learning and their evolving professional identity, shifts in protocols and practices between field experiences and studying about teacher education may inform why pre-service teachers can perceive field assignments as 'other and out of context, rather than as connective, cohesive and part of their continuous movement within their programme of study' (Sinner, 2012, p. 601). In such liminal spaces the unexpected reality shock during the first year of teaching in particular has been identified as key to hindering the development of effective coping mechanisms. Kim and Cho (2014) have investigated the relations among pre-service teachers' motivation, their sense of teaching efficacy, and their expectation of reality shock. In order to reduce reality shock among pre-service teachers and to prepare more resilient and efficacious teachers Kim and Cho (2014, p. 78) suggest teacher education programmes can include a number of methods to develop coping mechanisms. These include directing pre-service teachers to build supportive teaching networks, encouraging the sharing of experiences with colleagues, and informing pre-service teachers that, to some degree, reality shock is common. Their suggestions are made in the hope that the development of interpersonal skills will enhance motivation and preserve a sense of teaching efficacy even when faced with reality shock.

It has been one of my aims working with pre-service teachers in transition to assist them in developing both an understanding of, and methods for coping with, transition shock. My use of the video of 'The First Time', where previous graduates 'speak to' current pre-service teachers, uses epiphanic and revelatory moments of transition to becoming a teacher as prompts for discussion about identity, motivation, efficacy and the probability of experiencing transition shock. In this way I aim to assist pre-service teachers to expect some form of transition shock, while aiding them to develop efficacious practices in order to sustain them through their moments of transition, through viewing and discussing others' experiences.

The use of video technology as pedagogy in this instance is a responsive act that draws on the notion of looking back, where graduates 'speak to' current students. Viewers can slow down their thinking, distancing them from the action. Video as pedagogy is a form of pedagogical amplification (Danielowich, 2014). Viewers can tap into their own epiphanic moments of transition/transformation in order to 'break down' and 'build up' alternatives, practices, strategies, and pedagogy (Chung & van Es, 2014). The benefit of this approach lies in the viewing of real stories portrayed in a non-naturalistic style. This differs significantly from self-video analysis, which does not allow for as much critical distance. Hennessy and Deaney (2009) note that collaborative analysis of videos can be used to engage pre-service teachers in deeper reflection; assist them to postulate alternatives; adopt and modify practices presented in the video; and allow for changes in both pedagogical thinking and practice, along with increased metacognitive awareness.

'The First Time' was employed as a starting point for critical, reflective discourse founded in multiple perspectives, providing a metaphoric, aesthetic and ideological framework where the method of storying honours the complex and sometimes conflicting experience of becoming a teacher (Sinner, 2012). 'The First Time' complements previous studies that have focused on the role of emotion in learning, referring to films as part of a repertoire of teaching

tools, and the use of film in teaching referring to the resultant emotions as an aspect of student learning (Smith, 2013). The opportunities video as pedagogy affords for engagement in professional dialogue and scholarly analysis have been highly valued by practitioners (Hennessy & Deaney, 2009). This method offers the opportunity to actively test hypotheses, and provide immediate, precise feedback on intuitive decision-making skills (Hewson, 2007a).

Scenario-based work can give pre-service teachers a chance to explore how they might prepare for in-service teaching situations. Vicarious embodiment of the scenes makes it possible to consciously access and use tacit knowledge. A vocabulary of educational habits are a kind of 'situated knowledge', that is inscribed in and on the body as the subject lives through certain experiences (Hewson, 2007a). This embodied knowledge is just one subset of our cultural capital (Bourdieu, 1986); ways of talking, acting, and socialising, as well as language practices, values, and styles of dress and behaviour. Boal (1985) too recognized that we have physical habits based on our social and work experiences, which may limit responses to concrete situations. The attraction of scenario-based work in teacher education workshops is that the pre-service teachers can benefit from observation. 'Acting in the mind' (Jansma & Others, 1997) as a tool has its roots in metacognitive and reflective approaches to learning and can be described as a neural activity that is very similar to the activity accompanying the actual behaviour. Acting in the mind moves the viewer's level of participation towards a more interactive or proactive stance of participatory behaviour, encouraging the viewer's imagination to flesh out the suggestions presented (Pelias & VanOosting, 1987). The use of video can also encourage empathic reflection and perspective-taking (Bhukhanwala & Alleksaht-Snyder, 2012) as pre-service teachers engage in viewing and group discussion.

It is important to note that the use of video as pedagogy in these teacher education workshops was not part of the pre-service teachers' assessment. Chung and van Es (2014) contend that when completed tasks are not reliant on receiving a teaching credential they provide more insight into approaches for analysing teaching. More loosely guided scaffolds for responding to video can help diminish the 'mimicking' effect in more tightly guided video-based studies by encouraging pre-service teachers to articulate and explore the conceptual frameworks they use to make everyday decisions and develop change-directed thinking they will more likely enact in practice (Danielowich, 2014).

The status quo, unfortunately for teacher educators, is that graduates still report that their teacher education was not very useful (Louden, 2008). Many may agree with Aubusson and Schuck (2013) that teacher learning needs to be seen as lifelong and continuing, self-managed, involve others, and that development over a career needs to be differentiated according to individual need. It has also been recognised as important that teachers of the twenty-first century are able to use a range of pedagogical skills that fit their purposes – not only to acquire these skills, but more importantly, to exercise pedagogical judgement (Day, 2000). The formation of teachers is a complex and long term process (Louden, 2008) and developing a professional identity is recognised as one of the central tasks of learning to teach (Kane & Francis, 2013). A shift towards more clinically based teacher education and more focus on the specific contexts for which teachers are being prepared (Zeichner, 2014) is proposed as key to the development of efficacious beginning teachers.

Yet for many teachers, the preceding decades have been years of survival, rather than

development (Day, 2000). Effective mentoring and induction have been shown to counter the anxiety, stress and crises of confidence facing new teachers and also to address beginning teacher attrition (Kane & Francis, 2013). Yet these issues are difficult to address prior to entering the profession, as pre-service teacher education 'cannot fully create or sustain an environment that genuinely equates with the reality of full time teaching' (Loughran, Brown, & Doecke, 2001, p. 7) when little has changed in that 'challenges facing new teachers are both complex and stable over time' (Schuck et al. 2012, p. 82 in Kane & Francis, 2013). There is clearly a need for more highly educated motivated teachers who are able to use more autonomy (Day, 2000) in order to cope with the demands of twenty-first century teaching. So how do we, as teacher educators, achieve this? Loughran (2009) proposes the consideration of teacher education as a discipline, that teacher education is 'teaching teaching'; and that teacher education scholars must therefore be expert pedagogues with sophisticated knowledge and skills of 'teaching teaching' (p. 199). The use of video as pedagogy as outlined in this chapter might be viewed by Loughran as both beneficial and flawed. While I contend that my approach encourages greater integration of subject matter and pedagogical knowledge (Day, 2000) this needs to be presented in an interactive and highly engaging manner in order for the benefits to be achieved.

To achieve maximum benefit from the use of video as pedagogy the first stage of my approach was to develop a series of workshops around scenes from 'The First Time' as provocations. These workshops included a combination of viewing and discussing, and sometimes re-enacting and re-working, the scenes from 'The First Time' based on a Forum Theatre workshop format (Boal, 1992; Dwyer, 2004; Hewson, 2007b), where viewers voice their opinions with the aim to enact change. The second stage involved reflecting on the success of the 'pilot' workshops. This reflection drew on data from experiences of delivering the workshops, and data from the participants on how the workshops encouraged active participation in their decision-making with regards to their transition to teaching. The third stage enabled the generation of data from workshop participants when in their first year of teaching; asking them to consider the effectiveness of the workshops in preparing them for the specific contexts they encountered. Data was analysed within a phenomenographic paradigm, with the aim of describing variations of conception that people have of a particular phenomenon (Aubusson & Schuck, 2013). The phenomena being investigated included video representations of first-year teachers, identity making, ordering/organising content, critical reflection, engagement, and connecting practice to broader knowledge. Data was generated through questions/prompts in semi-structured interviews, anonymous student evaluation of teaching and unit (SETU) data and comments, and my own journal and observations that included notes on attendance and engagement, questions asked and comments made in the workshops.

An analysis of my findings in the form of post-workshop reflections showed that students immensely enjoyed the use of video technology as a pedagogical approach to promote critical thinking about the transition to teaching. There were in-depth and thought-provoking discussions after watching each video, with many students bursting to share their thoughts and perceptions. High attendance rates were maintained throughout the unit and were above those in previous years. Substantial effectiveness in relation to ordering/organising content,

stimulating interest and discussion, preparing for the transition to in-service teaching, and enhancing engagement in seminar/workshops was noted. Some effectiveness in stimulating critical reflection was found. I perceived limited effectiveness in students making the connection between practice and broader knowledge.

The interviews revealed a range of conceptual meanings, which were classified into categories of similarities and differences concerning the effectiveness of the video tool. Participants' conceptions of the phenomenon are individual and relational, and as such results were quite varied. Emergent varied themes include: 'I now know what it is that I need to learn'; 'Is this theory or practice?'; and 'I don't do drama'. Similarities include: 'Preparing for the unexpected'. Similarities of scenes deemed effective included 'Lachy', 'Janet', 'Amelia' and 'Maggie'. Interview participants reported they could relate more to these scenes and the shock the characters experienced. Shock is often viewed as a rite of passage can involve the suspension, and even temporary loss, of professional identity (Pierce, 2007). The perpetuation of the myth of shock as a rite of passage continues to be regarded by beginning teachers as an essential aspect of their practice, possibly because moments of shock are more visible than other events that mark the transition to becoming a teacher.

I have noticed how pre-service teachers develop their own culturally formed vernacular language to describe their status in relation to becoming a teacher. For pre-service teachers during their degree the word 'real' is used in relation to their practicum experiences, denoting a distinction between these and the theoretical understandings developed in lectures and workshops. In their responses participants mentioned 'real and relevant', suggesting they value practical experiences over theoretical ones. While the theory-practice divide is an ongoing issue in regards to teacher education, the term 'real' can also indicate how these teachers see themselves as being a pre-service teacher rather than becoming a teacher. This indicates that at some point they believe they will be a teacher.

The development and use of the term 'real' in particular demonstrates the way some pre- and in-service teachers describe the formation and transformation of their identity. Liminal discourses such as feeling like a real teacher emerged in the workshops and were also used throughout the transitional period between completing their degree and beginning in-service teaching. During this period they began to consider what a real teacher was, and how they felt about becoming a real teacher. The liminal period of transitioning from student to teacher was often emphasised during the process of job applications and interviews. The confidence reported by many pre-service teachers on 'surviving' the interview contributes to their sense of autonomy despite feeling as though they had developed their knowledge to respond on their own. Sadly, survival, shock and wash out prevailed upon in-service teaching, despite the effectiveness of the use of video as pedagogy in engaging pre-service teachers in the workshops. Though, as one participant reported, the 'Janet' interview scene and workshop discussion was foremost in her mind in her first job interview, where she reminded herself to avoid responding like 'just a grad'.

The use of video technology was deemed effective in creating workshop content from the past, in order to teach for tomorrow. In order to teach for the future it was effective to backward map the impact of the workshops on the beginning teacher's early in-service practice. 'The First Time' was reported as more relevant than other teaching-related movies and documentaries

the pre-service teachers had viewed as part of their teacher education. Responses highlighted the relevance of the 'reality' of the content, despite the way the material was shaped in a non-naturalistic theatrical style. In fact most reported that the non-naturalistic representation assisted them to see both the 'past' and the 'present' of each teacher's experiences. The responses, while varied, all concluded with the acknowledgement that the video as a pedagogical tool assisted them in 'preparing for tomorrow' by encouraging them to 'know what it is that I need to learn'.

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## Beyond shush: Talking to your librarian about teaching for tomorrow today

*Chris Moselen*

The University of Auckland

Teaching for tomorrow today in academic libraries is primarily a conversation around information literacy (IL) and lifelong learning; IL is “a prerequisite and essential enabler for lifelong learning” (Bundy, 2004, p.4). But it is not just libraries who are interested in lifelong learning. The New Zealand education system also has a strong interest in lifelong learning as seen in the New Zealand Curriculum whose vision for the future is “young people who will be confident, connected, actively involved, lifelong learners.” (Ministry of Education, 2007, p.7).

Beyond the curriculum, there are political and economic forces which drive the notion of lifelong learning; the basis of many recent documents on future-focused learning in New Zealand speak of the need to prepare this generation to take their place as competitive and productive members of the economy – “to prosper, grow and innovate” (21<sup>st</sup> Century Learning Reference Group, 2014, p.2) and to contribute “to a more productive and competitive New Zealand.” (Ministry of Business, Innovation & Employment, 2014, p.2). The assumptions driving such goals are based on the idea that we need to have an education system “fit for purpose” (Gilbert & Bull, 2014, p.2), the implication clearly being that what we have now is not meeting either the current or future needs of what our country will require to prosper. Rapid change, both economic and technological, has brought about the idea that learning and knowledge are mutable and that a disposition that embraces ongoing education will be required to meet the needs of the 21<sup>st</sup> century.

This chapter argues that the inclusion of both academic and information literacy capabilities into the undergraduate curriculum is one way to teach for tomorrow today. Such an approach supports the needs of students while they are at university, prepares them for their teaching careers and invests them with the capabilities to develop similar skills in their own pupils.

Teaching for tomorrow today requires the collaborative efforts of all those with an interest in teaching and learning – academic staff, learning advisers, learning designers and librarians.

### Academic libraries

Libraries and the concept of lifelong learning have been linked since the mid nineteenth century when industrial changes demanded the need for a more literate and well-educated workforce. Academic libraries have not generally espoused lifelong learning *per se* but have, since the 1970s, concentrated on the concept of information literacy (Zurkowski, 1974), a subset of lifelong learning.

Information literacy is strongly future focused, preparing students not just for the exigencies of academic study, but also for life after study. Institutional graduate profiles also recognise the need for students to leave the institution with a set of skills and capabilities that will prepare them for “the contribution they are able to make to their profession and as a citizen” (Bowden et al., as quoted in Spronken-Smith et al., 2013). The role of academic libraries in teaching and learning has most often been promoted in terms of information literacy where the rationale for it can be seen in institutional guidelines and policies (University of Auckland, 2003; 2011; 2012).

We expect our graduates to be independent and critical thinkers, open to new ideas, possessing intellectual curiosity and integrity, and to have a mastery of a body of knowledge and professional skills. They should be able to use information discerningly, to show tolerance and an understanding of diverse value systems and views, and to have the potential and the wish to contribute in a leadership role to national and global intellectual, social, scientific, economic and cultural development. (University of Auckland, 2012 p.10)

### Tertiary sector

In the education sector there is recognition that change is needed if New Zealand is to compete in the knowledge economies of the future. New Zealand’s Ministry of Education issued a discussion document (Ministry of Education, 2005) 10 years ago which discussed the key competencies needed in tertiary education. “Key competencies are the knowledge, skills, attitudes and values needed by everyone across a variety of life contexts.” (Ministry of Education, 2005, p. 4). They are a feature at all levels of the educational sector (see Figure 1) and have strong affiliations to both information literacy and lifelong learning.

The closest expression of key competencies that can be seen in many tertiary institutions are their graduate profiles (also known as graduate outcomes or graduate attributes). University libraries have tended to use graduate profiles to promote the idea of information literacy. The University of Auckland graduate profile (2003), for example, borrows heavily from the *Australian and New Zealand Information Literacy Framework* (Bundy, 2004).

Despite the existence of the graduate profiles, a recent survey (Spronken-Smith et al., 2013) of 14 New Zealand tertiary institutions found “engagement with a graduate outcomes agenda was at best patchy across the university and polytechnic sector” (p. 16), even though legislation was passed in 2011 that required graduate outcomes to be included in a graduate profile along with “education and employment pathways for graduates” (p. 13). Spronken-Smith et al. found that where academic staff mapped graduate attributes and embedded them into the curriculum

it had the potential to increase efficiency by rationalising the course objectives and allowed them to develop “a holistic sense of ‘graduateness’” rather than just seeing the attributes as “an atomised list of qualities” (p. 12.)

In our own institution, as part of the teaching and learning objectives prioritised for the next few years, a curriculum mapping project group (University of Auckland, 2014) recently recommended, among other things, that mechanisms be developed for a “top-down mapping process” (p.7) which would identify “key competencies required by the University and the Faculty or programme” (p.7). The university curriculum mapping project included three librarians and their involvement is indicative of the role that libraries see for themselves in teaching and learning in the University.

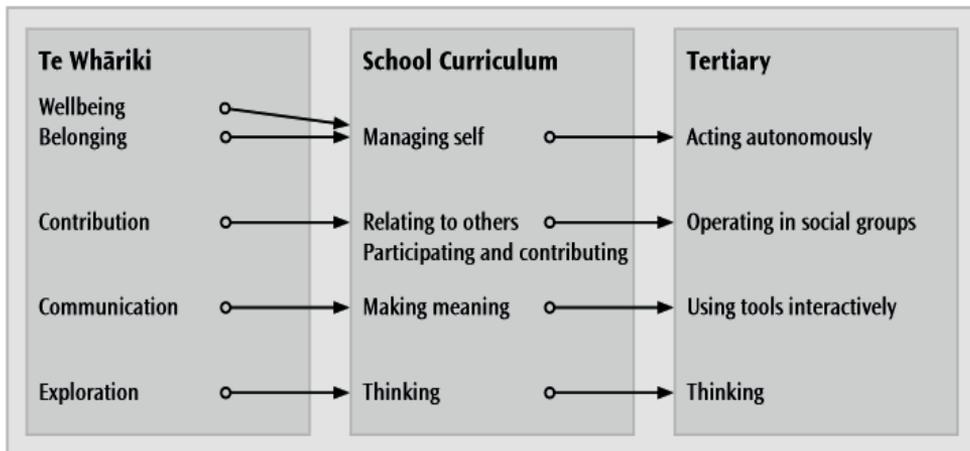


Figure 1. The alignment of key competencies in early childhood, school and tertiary sectors.

Retrieved from:

<http://www.minedu.govt.nz/-/media/MinEdu/Files/EducationSectors/TertiaryEducation/KeyCompetencies.pdf>

### Schooling sector

In New Zealand, as in many other countries, there has been research describing the attributes of students and the conditions necessary for future-oriented learning (Bolstad, 2011; Bolstad, 2011-2012; Bolstad & Gilbert, 2012;); in 2014 an entire issue of *SET: Research Information for Teachers*, one of the key publications used by practitioners and researchers, was devoted to future education. Part of that issue dealt with future-focused conceptions of literacy (Sandretto & Tilson, 2013; 2014). Using a multiliteracy lens, Sandretto and Tilson broadened the meaning of literacy to include literacy beyond that of written language. The multiliteracies approach “takes into account rapid changes in communication technologies that have resulted in wider access to multimodal texts, that is, texts that draw not only upon linguistic codes and conventions, but also visual, audio, gestural and spatial modes of communicating” (Sandretto & Tilson, 2014, p. 53). Using the theory of multiliteracies they articulated why such an approach was future-focused and also suggested that the four resources model of Luke and Freebody (as cited in Sandretto & Tilson, 2014) provided a template to enact critical multiliteracies in the classroom by using a curriculum mapping approach. They argue that by adopting critical multiliteracies and the four

resources model, literacy teaching expands to encompass “the specialist codes and conventions of diverse multi-modal texts across all curriculum areas” (p. 55).

As for the role of teachers, part of the recent research on future oriented schooling has described the necessity for a “culture of continuous learning for teachers and educational leaders” (Bolstad & Gilbert, 2012, p. 5) which suggests the need for dispositions very like those of lifelong learning.

### Broadening of concepts of information literacy – and those other literacies

Just as there have been expanding notions about the teaching of literacy, so too have there been expanding notions of information literacy. UNESCO (Wilson, Grizzle, Tuazon, Akyempong, & Cheung, 2011) promulgated its *Media and Information Literacy Curriculum for Teachers* in recognition of the ongoing need for students to be able to “engage meaningfully with media and information channels in whatever form and technologies they are using” (p.18). The document sounds similar to the kind of multiliterate engagement that Sandretto and Tilson (2013; 2014) are advocating. UNESCO, in the preparation of the curriculum went one step further; their document is designed as a framework for teacher professional development recognising as it does, the pivotal role that teachers play “in fostering media and information literate societies” (p. 24). While the UNESCO document is driven by different aims - to facilitate “freedom of expression, pluralism, intercultural dialogue and tolerance, [and to] contribute to democratic debate and good governance” (p. 25) - it is clear that there is a feeling at many levels of society that literacies of many kinds are going to be relevant for successful educational and life futures.

In the United Kingdom, Secker and Coonan (2011) took the widest possible definition of information literacy by recognising that there were three key dimensions which made it transitional, transferable and transformational. They see IL “not as a set of competencies but as a fundamental attribute of the discerning scholar and as a crucial social and personal element in the digital age” (Secker & Coonan, 2011, p. 4).

In the United States the American College of Research Libraries (2015) has just released a document that takes its conceptual understandings from the field of metaliteracy (Mackey & Jacobson, 2011), and is informed by the work on threshold concepts by Meyer and Land (2006). “A threshold concept can be considered as akin to a portal, opening up a new and previously inaccessible way of thinking about something” (p. 3). The *Framework for IL for Higher Education* offers an expanded definition of IL which calls on

teaching faculty [to] have a greater responsibility in designing curricula and assignments that foster enhanced engagement with the core ideas about information and scholarship within their disciplines [and] librarians [to] have a greater responsibility in identifying core ideas within their own knowledge domain that can extend learning for students, in creating a new cohesive curriculum for information literacy, and in collaborating more extensively with faculty (American College of Research Libraries, 2015, para. 1).

The broader definitions of information literacy reflect the values delineated in the NZ Curriculum (Ministry of Education, 2007) and the University Graduate Profile (University of Auckland, 2003). Information literacy, while still concerned with the finding, accessing,

evaluating and managing of information in the older definition, is now being seen as something much more expansive and encompassing of a range of many other kinds of literacies including metaliteracy, multiliteracy, and transliteracy. Figure 2 shows how information literacy now sits within the literacies landscape in Secker and Coonan's framework (2011).

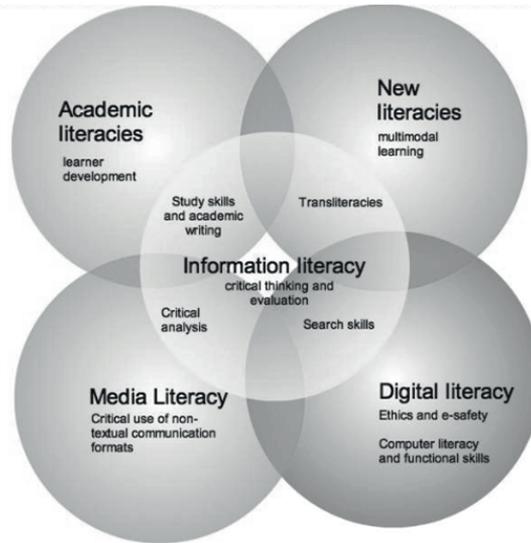


Figure 2. Information literacy in the literacies landscape. Retrieved from [http://eprints.lse.ac.uk/37681/1/Executive\\_summary.pdf](http://eprints.lse.ac.uk/37681/1/Executive_summary.pdf)

### Information literacy and pre-service teacher training

In the pre-service teacher environment the emphasis is on inquiry learning rather than information literacy as such. The link between inquiry learning and information literacy is an obvious one:

Information literacy education should create opportunities for self-directed and independent learning where students become engaged in using a wide variety of information sources to expand their knowledge, construct knowledge, ask informed questions and sharpen their critical thinking. This approach is evident in the increasingly widespread introduction of student centred constructivist pedagogy such as inquiry based, problem based and resource based learning. (Bundy, 2004, p.6).

The generic inquiry cycle (Boyd, 2013; Boyd & Hipkins, 2013) used in many New Zealand schools reflects elements of the capabilities required to develop information literacy and indicates that “IL skills that appear to be a core focus of generic inquiry approaches are one key subset of the skills and competencies that students require in the 21<sup>st</sup> century” (Boyd, 2013, p. 8). Boyd, however, also makes the point that “inquiry approaches to learning need to prepare students do more than seek, process and present information” (p. 8) and suggests that a mixture of approaches and models is more likely to create 21<sup>st</sup> century learning experiences than the use of one generic model.

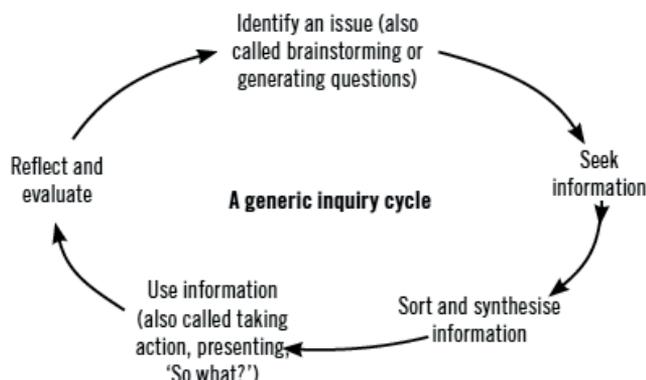


Figure 3. The generic inquiry cycle (Boyd, 2013, p. 7)

The problem is that research completed in the New Zealand schooling sector makes it clear that there is a lack of systematic and explicit teaching of information literacy skills (Brown, 2000; Education Review Office, 2005; Smith, Crooks & Allan, 2009; Hipkins, 2005; Ladbroke 2011; Ladbroke & Probert, 2011; Probert, 2011). The reason for this has been mainly attributed to a lack of professional development for in-service teachers, the lack of trained teacher librarians in schools (Probert, 2011) and an assumption amongst teachers that students would pick-up the skills or that someone else would teach them (Moore, 2002; Probert, 2011). Another reason may well be that teachers themselves are not information literate (Duke & Ward, 2009; Ladbroke & Probert, 2011; Probert, 2011), or if they are, are not passing their skills onto their pupils (Merchant & Hepworth, 2002). One way of ensuring that new teachers acquire the capabilities needed to teach the 21<sup>st</sup> century curriculum is to integrate those skills into the pre-service training curriculum.

### How educators and librarians are teaching for tomorrow today

Since 2013 the University of Auckland Libraries and Learning Services has expanded its view on the kinds of capabilities needed by students and added the concept of academic literacy to that of information literacy. Academic literacy refers to the “concepts and skills that address study effectiveness and scholastic achievement...writing, note taking, concept mapping, time management, synthesis and critical thinking” (Peacock, 2008, p. 2). Peacock argues for the coalescence of both academic literacy and information literacy, both being parts of the “single recursive scholarly process” (p. 3) necessary for successful academic study. To help develop the idea of both academic and information literacy professional library staff at the University of Auckland are required to attend a locally developed training programme which focuses on working with academic staff to integrate academic and information literacy into the curriculum, curriculum analysis and mapping and assessment (Moselen & Wang, 2014).

## Characteristics of academic and information literacy (AIL) integration

Wang (2010) described the general characteristics of AIL integration as follows: there is collaboration and negotiation between the partners in the integration; AIL must be contextualised or integrated into the curriculum, and lastly students must have multiple opportunities for interactions with information and academic skills both within years and across all the years of the degree. These general characteristics have been synthesised into teaching and learning practice by University of Auckland librarians over the past few years, and have the following core elements:

- Trusted working relationships between librarians and academic staff (Bruce, 2001; Wang, 2010).
- Analysis of the curriculum to obtain course information, learning outcomes and assessment information. This process helps identify core courses for AIL integration.
- A curriculum mapping exercise, which maps what aspects of the taught curriculum correspond to the AIL aspects of the University of Auckland's graduate profile, and sometimes also the requirements demanded by practitioner or accrediting bodies e.g. The Nursing Council, or the Institution of Professional Engineers. Gaps between the desired attributes and what is taught can then form the basis for the integration of AIL capabilities into the curriculum.
- Multiple modes of delivery; face-to-face, online, or through targeted learning sessions which form part of the First Year Experience (FYE) or even a combination of all three.
- Scaffolding AIL through core courses of a programme or degree over the three years of the degree. Where there is no specific "pathway" through a degree such as in the arts, core courses can be identified in terms of pre- and co-requisites.
- Marks can be allocated to parts of the course which foster AIL capabilities.

## Examples of AIL curriculum integration at the University of Auckland

There are a number of successful examples of AIL curriculum integration within the University of Auckland. One recent example is the work that has been carried out in the Pacific Studies Department (McCaffrey & Cook, 2015; 2014). The integration project is particularly relevant to the Faculty of Education and Social Work because of the high numbers of Pacific students studying in the Faculty, mainly in early childhood education (McFall-Ma'ilei, 2004). McCaffrey and Cook (2015) began their research project in 2011 and investigated ways "of promoting greater curriculum and academic literacy alignment, student engagement and success in academic studies using a blended approach" (p. 1). Based on student surveys in the first and third years, student feedback, and curriculum analysis and mapping they described how, in collaboration with academic staff, they integrated AIL into the curriculum across the three years

of the undergraduate degree using face to face Pacific learning approaches which they blended with e-learning. The online elements were provided using the University of Auckland software called Coursebuilder, a one-stop shop which allowed for interactive quizzes and activities, step by step guides, checklists and self-help activities. They also used online peer review.

In the School of Social Sciences, Department of Media, Film and Television (MFT) there has been successful integration of AIL capabilities since 2012 (Zdravkovic, Adams, & Etheridge, 2013). This integration has extended beyond the first year of studies into the second and third years. MFT is a particularly interesting example because many of the students studying these courses are not following a programmed “path” in the sense that preservice teachers would; some students may be studying MFT as a minor and be primarily based in another faculty. Even so this integration project was able to show that there was an increase in the numbers of students attaining higher grades due to the structured way that online and face to face support was offered in terms of the first assessment. In fact, right from the first year, student feedback has been consistently positive and comments from students make it clear that they also see how they can transfer the skills they have learnt into other disciplines.

The opportunity to integrate AIL into the curriculum sometimes arises through the audit of academic departments and the need for a curriculum review. Such an approach is currently being taken at the Faculty of Medical and Health Sciences where academic staff, librarians and learning advisers are contributing to the development of a new curriculum for the Bachelor of Health Sciences degree. A curriculum review of a programme is a prime opportunity to also include academic and information literacy and to ensure those capabilities are “staircased” through the programme.

## Conclusion

Our education system is heavily focused on the concept of teaching for tomorrow today, on the need to develop learners ready for “the projected needs of the 21<sup>st</sup> century world of work and rapidly changing global communications networks” (Ladbrook, 2011, p. 180). There are multiple ways in which teaching for tomorrow today is being expressed; the schooling sector is interested in future-oriented teachers and teaching, and changing literacies; in the tertiary sector there is a focus on graduate attributes and how these not only improve teaching and learning but also prepare graduates for ongoing work and life - for lifelong learning in fact. This chapter has attempted to intertwine many of these strands into a coherent argument for integrating “learning to learn” (New Zealand Curriculum Update, 2012) capabilities into the undergraduate curriculum and by briefly providing some examples of how this may be done.

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## Students' conceptions of teachers' and students' role as a mirror of the quality of university studies

*Barbara Šteh & Jana Kalin*

The University of Ljubljana

One of the most important goals of universities is to enhance students' learning and learning achievements. To reach this goal, it is essential that students actively participate in every step of the development process (Alaniska & Eriksson, 2006). Students' involvement should be understood as full participation. This close involvement generates an authentic partnership and therefore a more open dialogue. Therefore, one of the main purposes of our research study was to establish how students of pedagogy perceive their roles and the roles of teachers, and what important learning experience they gained during the course of their studies. There were two reasons for this. Firstly, the conceptions of learning and students' and teachers' roles are among the central concepts of pedagogy studies, so we were interested in whether the conceptions change during the course of studies and approach the modern scientific concepts of active and constructive learning (e.g. Barr & Tag, 1995; Simons, 1997). Secondly, empirical research studies indicate that subjective conceptions of learning have an impact on the quality of learning itself (cf. Ferla, Valcke, & Schuyten, 2009; Marton, Dall'Alba, & Beaty, 1993). We should strive for a move toward higher conceptions of learning and students' and teachers' roles, since we are, in that case, more likely to arrive at deep learning approach. We are aware that higher conceptions of learning are not a sufficient condition for a deep learning approach to be adopted, resulting in improved learning achievements; mediating factors, such as assessment systems, teachers' approaches to teaching and teaching methods, students' self-concepts, etc. are also crucial (Burnett, Pillay, & Dart, 2003). Changes in the direction of higher conceptions of students' and teachers' roles occurring in students can, nevertheless, prove to be an indicator of the quality of studies, as they demonstrate that students are ready to take on

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more responsible and autonomous roles during their studies. When endeavoring to enhance the quality of university studies, these insights provide important information on how to reform study programs and introduce improvements into the study process.

Devlin and Samarawickrema (2010) stressed that effective teaching is broadly understood as teaching that is oriented to and focused on students and their learning. Moreover, they point out two broadly accepted components of effective university teaching: that it requires a set of particular skills and practices (Penny, 2003 in Devlin & Samarawickrema, 2010) and that it meets the requirements of the context in which it occurs (Devlin, 2007, *ibid.*). Based on a survey of various sources on effective teaching, various characteristics of effective university teaching can be singled out (Hativa, Barak, & Simhi, 2001). Forest (2007), for example, paraphrases Lee Shulman and points out that the goal of higher education should be: to (1) ensure that students are engaged and motivated, (2) help them acquire knowledge and develop understanding, (3) enable them to demonstrate their knowledge and understanding through performance and action, (4) encourage them to engage in critical reflection of the world and their place within it, (5) develop their ability to navigate the constraints and complexities of the world in formulating their own judgements and designs for action and (6) foster a lifelong commitment to critical examination and self-development. All the above-mentioned goals are mutually dependent and intertwined. To attain them means to encourage the cognitive as well as affective and social development of an individual.

Nightingale and O'Neil (1994) and Trigwell (2008) emphasise that we must stay focused on creating conditions leading to quality learning, as this assures the highest degree of quality education. Prosser, Trigwell, and Taylor (1994 in Trigwell, 2008) identified five qualitatively different ways in which teachers experienced their teaching. Among them the two most extreme are the "information transmission/teacher-focused approach" and "conceptual change/student-focused approach" (p. 34). In empirical studies, it has been confirmed many times over that conceptual change/student-focused approaches are more likely to lead to students adopting deeper approaches to learning, and, because of this, they can be considered higher quality approaches to teaching (Trigwell, 2008). In the context of this approach, we are more focused on what the students perceive and do than on what the teacher does and what the contents of teaching are. This is the perspective needed for reflecting on and regarding students as partners in the educational process. In this context we should not overlook the conception of study programs themselves. They can enable students, to a greater or lesser degree, to participate in and actively co-design their studies (e.g. the ratio of lectures to seminars and practical exercises; the share and quality of internships during studies). However, vital importance lies in the manner of working with students and in efforts devoted to a good-quality study process, allowing students to understand fundamental concepts, without a disregard for students' current and future needs (Kember & McNaught, 2007 in Devlin & Samarawickrema, 2010) or their diversity. Students should also be qualified to face the challenges of the uncertain future. What is perhaps the most important is enabling students to become active learners, capable of taking control and responsible for their own learning.

Purpose of the study

In the comparative study that took place at the Department of Educational Sciences of the Faculty of Arts, University in Ljubljana, and at the Department of Pedagogy of the Faculty of Philosophy, University in Belgrade, we aimed to obtain feedback from students included in renewed Bologna programmes on the structure and contents of the study programmes, learning and teaching forms and activities, achieved competences as well as their conceptions of the essence of learning, their own and the teacher's roles. One of the central purposes was to obtain an insight into the way how first and third year students understand the essence of learning at the faculty. In this chapter we are particularly interested in finding out whether students assume a more responsible and independent role during their studies, what learning experiences are the most important for them and the impact of those experiences. Answers only to those research questions are presented in this chapter. We were, of course, also interested in the differences between answers of students in Ljubljana and in Belgrade.

## Method

The study involved first and third year students studying pedagogy and andragogy at the Faculty of Arts in Ljubljana, and first and third year students studying pedagogy at the Faculty of Philosophy in Belgrade in the 2012/13 academic year. The sample at the University in Ljubljana included 78 first year students and 54 third year students, while the sample at the University in Belgrade included 57 first year students and 56 third year students.

Two questionnaires about studies were designed for the purpose of our research, namely one for first-year and the other for third-year students of pedagogy. Most questions in the questionnaires were identical, except that the questionnaire for first-year students omitted questions related to their views of development of professional competences, the role of practical training, description of their positive experience during the studies and the influence of that experience. This chapter presents only answers to multiple choice questions about students' conceptions of teacher/student role and their significant learning experiences.

Data collection took place in January 2013. The gathered data was processed with the SPSS software package. The following statistical processes were used: descriptive analysis of variables,  $\chi^2$ -test or Kullback's test, when more than 20% of theoretical frequencies were lower than 5.

## Results and discussion

### *Conceptions of teacher and student roles*

To obtain insight into how students understand the key role of the teacher and their own role, we asked them to select between various descriptions of a "good" faculty teacher and the student's role in studying. These descriptions were based on a classification of teaching conceptions or personal theories of teaching as identified by Fox (1983) for higher education teachers. Both the roles – that of teachers and of students – are defined within the frame of these conceptions. At a lower level the author distinguishes between the conception of teaching as a transfer of knowledge and as shaping students, while at a higher level the author distinguishes between the conception of teaching as a journey around the subject area and teaching as fostering personal growth. In designing descriptions of the main teacher and student roles we took account of descriptions given by students themselves in previous

empirical studies, carried out on a sample of pedagogy and andragogy students of the Faculty of Arts in Ljubljana (cf. Šteh & Kalin, 2008). On this basis, the following descriptions giving characteristics of “good” teachers were given, corresponding to the four teaching conceptions according to Fox (1983):<sup>80</sup>

1. The teacher delivers in a clear, illustrative and interesting manner. If there is anything we don't understand, the teacher is ready to explain it again. The explanation is often made more vivid with real-life cases and additional material is prepared by the teacher.
2. The teacher helps us understand and master the subject-matter. The teacher teaches us to tackle solving certain practical problems, how to prepare good summaries, how to write good seminar papers.
3. The teacher encourages us to think critically and leads us in casting light on the treated subject-matter from new perspectives. The teacher encourages independent revealing, forming conclusions and constructing knowledge.
4. The teacher encourages us to develop, as much as possible, our potentials and to become independent and responsible students. The teacher helps us to instil sense in our own experiences.

According to the above-mentioned classification, the following descriptions of the main role of students in their studies were formed:

1. Students have to fulfil all their study obligations, regularly attend lectures, exercises and seminars and benefit from all such activities as much as possible.
2. Students have to regularly attend lectures, exercises and seminars, and actively participate in them. They study the subject-matter and try to understand it.
3. Students have to ask themselves and their teachers questions, and they have to be critical towards the subject-matters discussed. Students are responsible for their knowledge.
4. Students also have to be prepared for certain personality changes by working a lot on themselves and by forming their professional identity.

It is noteworthy that among first-year students of the University in Belgrade and in Ljubljana there are no statistically significant differences in conceptions of the key teacher's role ( $\chi^2 = 5.547$ ,  $n = 132$ ,  $df = 3$ ,  $p = 0.136$ ). Students of both universities most often selected a teacher who delivers in a clear and interesting manner, is an expert in his/her subject area and is clear about what will be required at the exam as a model of a “good” teacher. In comparison to students in Belgrade, the first-year students in Ljubljana present a somewhat greater share of students who selected lower level conceptions of the teacher's role (57.9% : 42.9%), representing students who attribute teachers the dominant role in the study process. In their views, a “good” teacher is the one who provides good delivering, motivates them and ensures that the subject-matter is mastered. This may be expected considering the insecurity of first-year students who

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<sup>80</sup> Below, the descriptions of “good” teachers and the students' roles are provided in summarised form.

are still accustoming themselves to the study arrangements and requirements. It should be added that among first-year students in Belgrade there is a slightly greater share of students (35.7%) who selected a teacher who encourages them to develop as much as possible their potentials and become independent and responsible students, i.e. a teacher who is also oriented towards encouraging their personal growth, as a model of “good” teacher.

*Table 1.* Representation of selected descriptions of a “good” teacher in first- and third-year pedagogy students of the University in Belgrade and in Ljubljana

The teacher's role <sup>81</sup>	University in Belgrade				University in Ljubljana			
	first year		third year		first year		third year	
	f	%	f	%	f	%	f	%
1. The teacher delivers in a clear, illustrative and interesting manner.	21	37.5	11	19.6	31	40.8	13	24.1
2. The teacher helps us to understand and master the subject-matter.	3	5.4	5	8.9	13	17.1	6	11.1
3. The teacher encourages us to think critically and leads us in casting light on the discussed subject-matter from new perspectives.	12	21.4	16	28.6	10	13.2	14	25.9
4. The teacher encourages us to develop, as much as possible, our potentials and to become independent and responsible students.	20	35.7	24	42.9	22	28.9	21	38.9
<b>Total</b>	<b>56</b>	<b>100.0</b>	<b>56</b>	<b>100.0</b>	<b>76</b>	<b>100.0</b>	<b>54</b>	<b>100.0</b>

Our conclusion is that during studies, some students change their conception of the teacher's role. The differences between first- and third-year students in their view of a model “good” teacher have not proved to be statistically significant either in Belgrade students ( $2\hat{I} = 4.621$ ,  $n = 112$ ,  $df = 3$ ,  $p = 0.207$ ) or in Ljubljana students ( $\chi^2 = 7.113$ ,  $n = 130$ ,  $df = 3$ ,  $p = 0.068$ ); however, certain tendencies in the desired direction are discernible. Among third-year students, there was an increased share of those whose views of a “good” teacher corresponded to higher level teaching conceptions both in Belgrade (71.5%) and Ljubljana (64.8%). Namely, since the former and the latter to a greater extent selected a teacher who encourages their personal growth, it can be concluded and expected that students are gradually becoming more prepared for independent development of their own potentials.

<sup>81</sup> In the questionnaire, the descriptions of a “good” teacher were listed in no particular order, not as in the present table where the bottom-up approach is used.

Let us look at what students say of their own role. Table 2 shows that the greatest share of first-year students both in Belgrade (42.1%) and in Ljubljana (35.9%) are of the opinion that the student's most important role is to regularly attend lectures, seminars and exercises and to actively participate and understand the subject-matter. The same share of students at the University of Ljubljana (35.9%) is of the opinion that their role is more autonomous and responsible, since they consider themselves responsible for their knowledge, that they have to tackle specific themes with self-initiative and independence and that they have to pose questions to themselves and teachers, as well as be critical to the subject matter. There were 31.6% of such students at the University in Belgrade.

Table 2. Representation of selected descriptions of the principal role in the studies of first- and third-year pedagogy students of the University in Belgrade and in Ljubljana

The student's role <sup>82</sup>	University in Belgrade				University in Ljubljana			
	first year		third year		first year		third year	
	f	%	f	%	f	%	f	%
1. Students have to fulfil all their study obligations, regularly attend lectures, exercises and seminars and benefit from them as much as possible.	9	15.8	3	5.4	12	15.4	5	9.3
2. Students have to regularly attend lectures, exercises and seminars, and actively participate in them.	24	42.1	10	17.9	28	35.9	6	11.1
3. Students are responsible for their knowledge; they have to ask themselves and teachers questions, and be critical towards the subject-matter discussed.	18	31.6	28	50.0	28	35.9	33	61.1
4. Students also have to be prepared for certain personality changes by working a lot on themselves and by forming their professional identity.	6	10.5	15	26.8	10	12.8	10	18.5
<b>Total</b>	<b>57</b>	<b>100.0</b>	<b>56</b>	<b>100.0</b>	<b>78</b>	<b>100.0</b>	<b>54</b>	<b>100.0</b>

Both first- and third-year students of the Universities in Belgrade and Ljubljana demonstrate statistically significant differences in understanding the significant student's role (Belgrade:  $\chi^2 = 14.788$ ,  $n = 113$ ,  $df = 3$ ,  $p = 0.002$ ; Ljubljana:  $\chi^2 = 13.614$ ,  $n = 132$ ,  $df = 3$ ,  $p =$

<sup>82</sup> In the questionnaire, the descriptions of a "good" teacher were listed in no particular order, not as in the present table where the bottom-up approach is used.

0.003). A pleasing fact is that there is a turning point in the third year at both Belgrade and Ljubljana universities: a half of Belgrade students and 61.1% of Ljubljana students emphasise the more autonomous and responsible role of students in acquiring knowledge. In the third year there are increased shares of students who are ready for personal growth (26.8% of students from Belgrade and 18.5% of students from Ljubljana). In this context we are asking ourselves about the role of the studies and its demands and what is the role of other factors such as personal maturity, life experiences, etc. As teachers we should certainly keep asking ourselves about how to develop learning environments which enhance students' perceived control over their learning (Ferla et al., 2009). We can also extract many important guidelines from what students themselves tell us about their important learning experiences.

### *Significant learning experiences*

Further on, we were interested which positive learning experiences from the time of their studies significantly influenced the third year students in their opinions. There were statistically significant differences among students of the universities in Belgrade and Ljubljana in reference to their answers to which form of organized study prompted the significant learning experience ( $\chi^2 = 47.034$ ,  $n = 110$ ,  $df = 3$ ,  $p = 0.000$ ). The answer most often given by students of the University in Ljubljana was that their practical training represented the significant learning experience (63%), followed by lectures (18.5%). This was the answer most frequently selected by Belgrade students (33.9%), followed by learning experiences that happened in group work with colleagues at projects, seminars, etc. – 19.6%, and during organized visits to institutions – 17.9%. Each of the last two answers was selected only once by students of University of Ljubljana. Exercises would be expected to represent an important learning situation that enables students to challenge their existing subjective theories, test themselves in various new situations, and personally consider pedagogic issues. However, students' answers imply that exercises have less power – this answer was more frequently selected by Belgrade students (14.3%), while only 9.3% of Ljubljana students opted for this answer. This poses the question of the concept and scope of exercises or their contents, goals and realization. Notably, it was mostly students of the University in Belgrade who experienced the most important learning experience at lectures (33.9% of answers) – which can encourage more responsible and high quality performance of lectures. The differences in answers between Belgrade and Ljubljana students to some extent reflect the differences in the way the study programme is conceived at each university. For example, University in Belgrade has practical training as late as during the summer semester of the third year (which was after the survey was made), so the answers did not refer to practical training.

We were further interested in the influence of such significant learning experiences students recognised in themselves. Students of the University in Belgrade most often pointed out that the important learning experience during their studies encouraged their motivation for study (48.2%). This was followed by the answer that development of competences relevant for professional work was important (30.4%), while next came the equally frequent selection of two aspects – one was recognizing usefulness of theory in solving actual problems and the other acquiring new experiences through work (26.6% each). While students of the University in Ljubljana most often selected the answer that the important study experience was testing

themselves in actual situations (37%), it is followed with a balanced choice of two answers: first, that they acquired knowledge on the usefulness of theory in solving actual problems, and second that they developed competences important for their professional work (each selected by 35.2% of students). The answers students gave to this question are strongly related to the place where the important learning experience took place. Among Ljubljana students it very often occurred during their practical training where students had the opportunity to work and test themselves in some typical situations in which pedagogues or adult educators work. A considerable gap and statistically significant differences between the answers of Ljubljana and Belgrade university students are noticeable in some items, such as: acquiring experience of individual work with pupils, learning with others and from others in group discussions and increased motivation for studies. Acquiring experiences in individual work was strongly emphasized by Ljubljana students (20.4%); among Belgrade students the prevailing choices were learning with others in group discussions (19.6%) and increased motivation for their studies (48.2%). Answers of Belgrade students can be understood in the context of answers to the question where the important learning experience took place, in which they strongly referred to the importance of lectures, group work with colleagues on projects and during seminars as well as visits to educational institutions. All these work methods evidently reflected in increased motivation for studies among Belgrade students.

## Conclusion

The importance of the role of students' feedback in ensuring high quality university studies again became evident. This chapter presents a small part of the results obtained in the comparative study, yet even this shows that the challenge in Ljubljana may be more frequently organizing quality discussion and particular forms of participative learning, while in Belgrade, the challenge may be integrating more opportunities for students to test themselves and show their knowledge in practical situations already in the first two years of the studies. It is particularly important that students in both Ljubljana and Belgrade are offered adequate support in connecting theory and practice, as this allows them to add meaning to their studies, work through their misconceptions and develop an in-depth understanding of contents in the areas of pedagogy as well as independently solve topical issues and problems encountered in this subject area.

The findings confirm that it is worthwhile to orient our efforts towards planning and forming learning situations that will enable students to be actively and responsibly included in the study process. As pointed out by Devlin and Samarawickrema (2010), answers to the question how to conceive such a learning situation as to encourage quality learning of students, along with the specific learning objectives, students and all other circumstances, need to be searched for again and again.

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## Teaching for Tomorrow Today

*Teaching for Tomorrow Today* captures the sense of urgency, excitement and challenge all teachers face as they prepare students for a future that is already here. Such an environment calls for extensive research into understanding how the forces of change, and emerging waves of interest associated with these forces, inspire and invite us to imagine a future of learning that is as powerful as it is optimistic for learners from early childhood through to tertiary education. In this edited collection, the International Study Association of Teachers and Teaching (ISATT) community share their research contextualised by this unfolding and challenging educational environment. The collection itself is structured around the following sections:

- Learning environments, learning networks and professional learning in teacher education
- Indigenous, ethnic and cultural perspectives on teaching
- Educational leadership – leading learning
- Key pedagogies for school subjects and contexts
- Future-oriented teaching and learning

*Teaching for Tomorrow Today* is a text written by international scholars to support the 17th biennial conference held at the University of Auckland, New Zealand in July 2015. It is a text that greatly enhances the conversations and understandings associated with working in a future that is already here.

**Dawn Garbett** is an Associate Professor in the School of Curriculum and Pedagogy at the University of Auckland. She is ISATT's national representative in New Zealand. Her commitment to teaching and expertise as a practitioner researcher resulted in University and National Tertiary Teaching Excellence awards.

**Alan Owens** is a Principal Lecturer in the School of Curriculum and Pedagogy at the University of Auckland. His research explores the nature of future-oriented teaching and learning and seeks to understand how new technologies enhance pedagogical decision making.