NAVIGATING IN EDUCATIONAL CONTEXTS

Navigating in Educational Contexts

Identities and Cultures in Dialogue

Edited by

Anneli Lauriala
University of Lapland, Finland

Raimo Rajala
University of Lapland, Finland

Heli Ruokamo
University of Lapland, Finland

and

Outi Ylitapio-Mäntylä
University of Lapland, Finland

Printed on acid-free paper

CONTENTS

CONTENTS

FOREWORD

This book perfectly fits ISATT's tradition of providing a wide range of approaches to gaining a meaningful understanding of the processes of teaching and learning. These are aimed at uncovering, through doing research, of what Dewey[i] called the *significance* of what we see, hear, and touch. During our 2009 conference, so beautifully organized in Finland's far north, the theme "Navigating in Educational Contexts" was brought to life in the presentations and during the debates. An organization with members from all parts of the globe, is very well positioned to provide a platform for ongoing dialogue about research in education. This book contains some important contributions to that dialogue. "Teachers matter"[ii], and books about these teachers matter to everyone aiming to educate teachers and to improve teaching in all levels of education.

This book further shapes ISATT's mission to promote, present, discuss and disseminate research on teachers and teaching and contribute to theory formation in this field. It points at lines of research that are being developed at this moment, such as teacher identity, ICT in education, and new ways of addressing and assessing teachers' learning and development. It also underlines the creativity of ISATT's members in approaching research in more dialogical ways, where teachers and students are treated not just as research subjects, but as participants, informants, and even as co-researchers.

The collection of papers in this book is a source of inspiration for all researchers who take a more holistic view of research in education, in which a dialogue is sought between researchers, teachers and students. It addresses key issues in education, captured in four sections that cover the conference contributions. This book follows a tradition of highly cited books, and I am confident it will equally influence further research.

Paulien C. Meijer
ISATT chair

---

[i] Dewey, J. (1938). *Experience and Education.* New York: Kappa Delta Phi.

[ii] Day, C., Sammons, P., Stobart, G., Kington, A., & Gu, Q. (2007). Teachers matter. Connecting lives, work and effectiveness. New York: McGraw Hill.

ACKNOWLEDGEMENTS

PREFACE

The articles presented here are based on the invited keynote speeches and the accepted paper presentations of the 2009 ISATT conference held in Rovaniemi, Finland.

The location of the conference, near the Arctic Circle in Lapland, attracted participants from 33 different countries and from all continents. There were over 250 delegates. In addition, 32 post graduate students attended a two-day pre-conference based on authentic atmosphere and a genuine discussion on what defines good and worthwhile research. This event turned out to be a most inspiring and instructive experience for all.

With the main theme of conference *Navigating in Educational Contexts: Identities and Cultures in Dialogue*, we wanted to point out how learning and growth are dependent on and embedded in contexts. The changing contexts of education, locally, nationally and globally challenge educators at all levels to reflect, update and transform their views and practices. There are urgent questions: What are the core values and principles underpinning good pedagogy? How do teachers cope with the complexities of their work and manage to sustain their pedagogical ideals? What does equity, caring and inclusiveness mean in different contexts and situations?

In a world of globalization, mobility and multiculturalism, issues of identities and cultures have become more and more meaningful; hence, enhancing and sustaining a sense of cultural and personal identity becomes of paramount importance in educational contexts. There were important paper presentations that dealt with the kinds of contexts, relationships and practices that enable students, teachers and researchers to develop their personal and collective identities. One urgent question emerging from the presentations concerned how professional identities are shaped by dialogue and tensions between personal, professional and contextual knowledge.

Besides different topic areas, the main theme of the conference was addressed from different methodological stances, since different research approaches, types or strategies were represented in the keynotes and in paper presentations and symposia. The following sub-themes indicate the special foci under the conference main theme.

At the beginning of the book, the keynote speeches held at the conference will be presented. They address the issues of identity and challenges of education, and as well individual learner, learning communities as varying contexts of learning, from classrooms to virtual worlds.

PROFESSIONAL DEVELOPMENT AND LEARNING

Life-long learning and continuous professional development pose challenges for teacher education and school leadership. It is important to ask how we may

enhance professional development in different career phases and transitions and in changing contexts. We need to deepen our understanding on what characterizes teacher learning, what constitutes the critical elements for teachers to develop and transform their thinking and practices and what fosters teachers' well-being, sense of competence, motivation and commitment to learn. The following articles present some effective approaches for enhancing teacher growth and learning.

Lisa Gross and Susan Gilbert from the USA describe in their article how pre-service teachers' prior formative schooling experiences affect and give shape to their perceptions of teaching and their self-images as teachers. Gross and Gilbert's research shows the importance and need for reflective practice, where time is allotted to examine early experiences and to become conscious of one's motivations.

Riitta Jyrhämä and Eija Syrjäläinen from Finland base their article on teaching practice supervision, which they examine in the framework of a didactic/pedagogic triangle developed by Kansanen. The model entails different levels of thinking linked to different types of didactic and pedagogical relations. Their research aims at outlining various views of supervisory roles and their development during the supervision course. The article illuminates the many roles of a supervisor in teacher education involving both empathy and rigor.

Helena Koskinen from Finland presents research on and the development of a five-step approach to enhance teachers' reflective skills. The participants are adults who, after graduation in different scientific fields, are doing their pedagogical studies, based on cumulative and blended learning. The studies involve both on-campus courses and off-campus e-learning and individual work. The focus of reflection shifted, in the five-step path, from describing one's prior experiences, teaching process, and personal know-how to critical reflection of learning processes and assessing the training in whole. The model can be seen as a useful tool in strengthening the development of students' teacher identity and expertise. The author points to the importance of paying attention to adult students' different learning strategies and the need for flexibility in the studies.

John Loughran, Amanda Berry, Allie Clemans, Stephen Keast, Bianca Miranda, Graham Parr, Philip Riley and Elisabeth Tudball from Australia explore the nature of teachers' professional learning. Their article points to the difference between traditional professional development and professional learning programs. Instead of doing things to teachers (PD), professional learning refers to working with teachers to help them to develop skills, knowledge and abilities that are responsive to their own needs, issues and concerns and to the specific conditions where they work. Case writing is used as a method for sharing and learning about experiences. Creating a collaborative, trusting environment is shown to be a corner stone for learning. It is presented as one way of recognizing and responding to teachers' needs, in order to create conditions conducive to genuine professional learning.

Ian Mitchell's and Julia Mitchell's paper focuses on the development of teachers' metacognition skills through an action research project. Their findings show that four types of knowledge are needed to inform purposeful teaching and to promote quality learning and metacognition. The study highlights the value of long-term teacher research projects, owned by teachers, when aiming at meaningful changes

in teacher learning and in learning to learn. Further the study points to the significance of teachers sharing experiences with peers, as well as collaboration with academics in analysing their actions and articulating their experiential knowledge.

CONTEXT AND TEACHING

The section, *Context and Teaching*, comprises articles which analyse changing contexts of teaching and learning. Teaching and learning take place to a great extent in the world of globalization. What is understood as a right to education is complicated by many things in a new global world and education needs to regard learning through engagement with the environment as a viable form of learning. In teaching practice, there is both an ethical and a behavioural aspect in the teacher-student relationships of a caring teacher. Emotional intelligence is an important part of teachers' interactive behaviour.

Christine Arnold and Michael Compf analyse policies and procedures of Canadian universities in credit transfers. Their conclusion is that systems of higher education cannot work in isolation from one another. In the future, sharing local and global resources and knowledge is important. *Jude Butcher, Anne Benjamin, Chris Sidoti, Antony Steel and Dawn Casey* present new foundations of for schools and communities from the perspective of the right to education. The Universal Declaration of Human Rights has not been effectively realized in different national and geographical contexts. They explore the challenges the right to education poses on governments and school systems. Actions need to be undertaken at the local level of teachers and administrators. Those working in education need to be educated with regard to the extended right to education.

Patrick Dillon and Phil Bayliss present an ecological framework for education. Sociocultural theory explains how cultural patterns are associated with settled, largely urban lifestyles. Western educational situations, structures, contexts and schemata are substantially pre-defined and things are 'context-dependent'. They see the Mongolian situation as a challenge to some premises of western theory. In Mongolia both meaning and context emerge from people's interactions with their environments. The presented ecological framework attempts simultaneously to embrace both interpretations.

Wendy Moran considers caring teachers. The profile of a caring teacher has ethical and behavioural aspects. Defining a teacher as caring is an easy task, but the personal factors that are related to a caring teacher need exploring. In this article, personal and teaching-related mindsets are described based on a survey and interview data. *Lefkios Neophytou, Mary Koutselini and Leonidas Kyriakides* make an attempt to analyse the relationships between teachers' personal beliefs, teachers' emotional intelligence, quality of teaching and effectiveness of teaching. Quality of teaching was found to mediate the effects of both emotional intelligence as a mixed trait and teachers' beliefs on effectiveness of teaching at the teacher level and at the level of students' performance in math. In conclusion, better teaching is associated with improved understanding of Personal Theory.

ICT OF TEACHING AND LEARNING

As a part of a NBE meeting, an *ICT of Teaching and Learning* subtheme was established. Under this theme four reviewed articles were accepted for publication. The first one of them deals with the relationship between students' perceptions of their problem-solving and ICT skills and their ICT experience as part of their teacher education program. In the article *Shukri Sanber and Marea Nicholson* also presents the ICT integration model. The results of the study clearly indicate that student teachers can graduate possessing working proficiency in ICT that would enable them to use the technology in the classroom. At the same time they are able to further their skills and to adapt with changing environments.

In the second article *Carolyn Broadbent, Maureen Boyle and Jo Brady* discuss professional links and professional support: How does it promote the development of quality pedagogy and teachers' self-efficacy in the use of ICT within a supportive professional learning community. Results of the study suggest that collaborative partnerships between universities, schools and the wider educational community are to be encouraged as they have the potential to revitalise teachers' professional learning. They also create avenues for the construction of new knowledge and development of skills, and, through purposeful and mutually reciprocal engagement, can lead to more equitable and sustainable outcomes for all.

Tuulikki Keskitalo and Heli Ruokamo present a designed model for virtual reality and a simulation-based learning environment for healthcare in the third article. The developed pedagogical model is based on the characteristics of meaningful learning. The preliminary results of the study show that the characteristics that were strongly supported were experiential, experimental, socio-constructive, collaborative, active, responsible, reflective, competence-based, contextual and self-directed. But in the future we must consider how the *emotional, critical, goal-oriented* and *individual* characteristics could be fully realized, since they are crucial points in promoting meaningful learning.

Last of the ICT in Teaching in Learning subtheme's articles, *Leo Pekkala, Päivi Hakkarainen and Harri Heikkilä* study online tutoring for media education and how it interns in practical training. The results of the research show some positive effects of online tutoring in relation to supporting meaningful learning. The students have been able to collaborate and communicate within each other during the training. They have been able to communicate with their academic tutor, which has not been possible before online. In this study the elements of meaningful learning processes have been recognised. A specific online environment and a selection of social media communication tools have encouraged students to communicate informally and reflect spontaneously.

Anneli Lauriala, Raimo Rajala, Heli Ruokamo and Outi Ylitapio-Mäntylä

IDENTITY, CONTEXT, MARGINALITY

TEACHING AND MARGINALITY:
LESSONS FROM TEACHERS' LIFE STORIES

Freema Elbaz-Luwisch

In many traditions, teachers are honored as holding a place of central importance to the development of society. However, there are signs that teaching as a profession is increasingly being marginalized in society: research studies as well as statements in the public forum tell us that teaching has become a more and more difficult job over the years. The frequent use of terms such as "deskilling" (Apple, 1987) and "intensification" (Woods, 1999; Ballet et al., 2006; Hargreaves 1994, 2003) reflect this. Research on teaching often looks at the negative side of the ledger rather than the positive, focusing heavily on topics such as teacher stress and burnout (Vandenberghe & Huberman, 1999; Wilhelm et al, 2000) . Teachers complain about being under constant pressure to respond to reform initiatives, in particular to outcome-oriented and standards-based programs that demand many changes in teachers' work without always delivering the hoped-for gains in student achievement; in many countries teachers are poorly rewarded for their efforts, paid low salaries and offered few opportunities for advancement. Overall, rapid changes in the work of teaching have left many teachers "grieving for a lost self" (Nias, 1993), struggling to make sense of the latest reform and wondering whether it is worth their effort to invest in mandated new programs (Gitlin & Margonis, 1995).

It is worth asking why teaching is being so marginalized. One reason may be that the work of teaching is closely tied to its social and cultural context: teachers work in what Clandinin and Connelly (1996) term a "professional knowledge landscape" that is in many respects unique to the time and place where it is embedded. Contemporary global and globalizing culture, on the other hand, values skills that can be decontextualized and transported from place to place in a competitive global market fed by the ever-growing emphasis on economic values. Teaching, it is well known, does not create marketable products, and in an economic frame of reference children are valued mainly as potential consumers; yet teachers insist on relating to children as individuals of unique worth (Estola et al., 2003). Under postmodernism, too, knowledge and intellectual goods are seen as relative and open to doubt, thus undermining the status of those who convey them. As a result, schools and teachers come to be seen as anachronistic, almost unchanging entities within a context of rapid social and cultural change. Furthermore, the social emphasis on what Giddens (1991) termed the "reflexive project of the self" would seem ill-suited to teachers who are primarily concerned with the welfare of others. In addition,

the steadily increasing feminization of teaching contributes to the devaluing of teaching as 'women's work'; interestingly, though, Griffiths (2006) argues that "the feminization of teaching, insofar as it exists, is to be welcomed because it provides a space for resisting hegemonic masculinity (p. 387)."

Almost by definition, the marginal would seem to be of lesser value and interest than what is in the mainstream of society, but this is not necessarily the case: the logic of qualitative inquiry often suggests that the margins and forgotten corners of society may have the potential to illuminate what is central. Huber and Whelan (1999) suggest that a marginal story may be seen as a place of possibility. Following this logic, the main question to be considered here is, what can be learned from teachers' life stories about how they experience and live out their apparent marginality? How does marginality appear in teachers' stories (if at all)? How are teachers' lives 'emplotted' (Polkinghorne, 1995)? And what are the lessons for the teaching profession, for teacher education and for research?

I will start by sketching out the background to this inquiry; I begin with some comments about the status of the teaching profession in Israel today, and then take up the question of social and gender influences on the profession. Following that, I will outline the methodology of the inquiry, and then present and interpret the stories of two teachers. Finally, I will discuss the implications of these stories for the questions indicated above.

THE TEACHING PROFESSION IN ISRAEL

In Israel, the teaching profession was established early on, well before the establishment of the state, and teaching was regarded as one of the highest forms of contribution to society. The Israeli Teachers' Union was established in 1892 and housed in a large building (now a museum) that stood out, and is still an impressive structure today, in the town of Zichron Yaacov. Currently, however, teachers work in a contested environment, characterized by constant reform initiatives, large heterogeneous classes, increased parental criticism and demands paired with eroding teacher authority, difficult working conditions (Arieli, 1995) and relatively low salaries (Naphcha & Nir, 2008). Some years ago a special education teacher published a satiric account of her work in a local newspaper, detailing the impossible demands of her job – to be a policewoman, learning difficulties diagnostician, mother, psychologist, conflict mediator, stand-up comedian and cleaner as well as teacher; the article, entitled "story of a dishrag", was talked about for weeks in teachers' lounges as well as in university classrooms.

A teachers' strike in 2007−8 that lasted for many weeks and ended in only minor gains for the teachers underlined the difficult situation. Today there are fewer applicants to teacher education programs, and teaching shortages are projected for the years ahead. Still, teaching has somewhat higher (but also eroding) status in the Arab/Palestinian community (Eilam, 2002), and among immigrants to Israel (Elbaz-Luwisch, 2004). In the traditional Arab culture, teaching is viewed as an appropriate and honoured profession for women, while immigrants from the former

Soviet Union bring with them the high status accorded to teachers in their countries of origin; the latter usually become teachers of mathematics, English and the sciences, subjects which also confer higher status.

TEACHERS' NARRATIVES: CAREER, GENDER, POWER

Narrative as both phenomenon and method (Clandinin and Connelly, 2000) offers a rich theoretical backdrop against which to view teachers' lives and careers. Teachers' narratives highlight time and place – cultural, historical, geographical and experiential (Conle, 1999), and their impact on the teacher's life and work. Theorists attend to the impact of voice (Bakhtin, 1981; Goodson, 1992), the effects of power (Davies and Gannon, 2006; Phelan, 2001), and conformity and resistance to social/cultural norms (Brown & Gilligan, 1992), all of which can be crucial to the understanding of teachers' careers.

The development of career from a gender perspective gives rise to some important insights. For example, Heilbrun (1988) suggested that women tend to focus on family first, and only invest in their careers later in life; she found uncertainty and an absence of ambition in women's narratives. Bateson (1990) similarly found that women's narratives were characterized by interruption, discontinuity and evidence that women tended to respond and adapt to external circumstance in the shaping of their careers. In a more recent study of young women's career narratives, Plunkett (2001) found that serendipity and agency are woven together: chance and circumstance still play a role in the shaping of women's working lives, but young women story themselves as playing an active role in the development of their own careers.

These developments are further illuminated by the feminist theory of practice elaborated by Griffiths (2006), who argues that practices in general are both embodied and embedded in social relations. They are not discrete forms of activity that can be sharply differentiated, but rather are fluid, 'leaky', and have permeable boundaries. Thus, like other forms of practice, "the practice of teaching leaks into the practices of mothering, fathering, managing, facilitating, counselling, and philosophizing – and vice versa (p. 396)." It will be interesting to note how this "leakiness" is expressed in the teachers' autobiographical writing.

METHODOLOGY

The present study is a narrative inquiry focussed on interpretation of the written autobiographical narratives of two teachers, students in an advanced qualitative methodology course, "Narrative inquiry in a multicultural context". As part of the work of this course, students produced a piece of autobiographical writing, seven to ten pages in length; they were invited to write descriptively about their lives, and were not given specific guidelines beyond the encouragement to write concretely and focus on specific episodes and events. The students also interviewed one another, and interpreted one another's life stories. A previous study in this setting

examined 6 autobiographies (including the two to be discussed here), looking at the authors' sense of place; themes of displacement, origins, and vocation were identified in those stories (Elbaz-Luwisch, 2009).

In recent years, personal writing has earned a central place in teacher education and in professional development activities for teachers, serving as an important tool in fostering teachers' professional growth in both pre-service and in-service settings (Conle, 1996; Connelly & Clandinin, 1996; MacLeod & Cowieson, 2001;). Through autobiographical writing, teachers can reflect on the sources that have influenced their current practice, assess their own learning, and imagine the future (Raymond et al, 1992; Heikkinen, 1998). Such writing thus serves as a window onto the teacher's life and work, and autobiographical texts, where available, are important field texts in the study of teaching. Like any other field text (interview protocols, field notes of conversations etc.), autobiographical texts are written with some audience in mind, even when the author does not intend for that audience to actually read the text. In the present case, the autobiographical writing was produced as a course assignment, and students knew that not only the course professor but also fellow students would be reading their texts. Students were invited to provide an extra copy of their writing for my research purposes, and about half of the students did so.

In interpreting the life stories I draw on diverse modes of narrative analysis (Clandinin and Connelly, 2000; Brown & Gilligan, 1992) paying attention to time and place (Conle, 1999), to the relationships of the teller to others in her setting and to herself, to voice and to the effects of power, and conformity and resistance to social/cultural norms (Brown & Gilligan, 1992). In addition, the way the stories are told or written (plot, characters, language and metaphor) are attended to. My intention in all this is to listen carefully to personal voices, and at the same to pay attention to the ways that culture, history and politics shape the narratives (Goodson, 1992). I look for a critical distance from which to read, that might enable a broader and deeper understanding of the narratives.

In looking for the way the marginalization might be expressed in teachers' narratives, I paid special attention to the place of teaching and work in the life story as a whole, to the connections between self and 'others' in the narratives, to the role of other teachers as characters in the story (whether cast as helpers or enemies), to perceptions of shared tasks and shared ideals in descriptions of teaching as work or as vocation. Also, I looked for any specific content that might be related to marginalization.

Participants

The two teachers whose life stories will be examined here are Ariana and Marie (pseudonyms). Ariana is 40 years old, married with two children, and works as a teacher of high school physics. She is Jewish, and was born in the former Soviet Union; her family immigrated to Israel when she was 10 years old, somewhat earlier than the most recent large wave of immigration from countries of the former Soviet Union that began in 1990. Marie is in her late 20's, married with one child;

she teaches English as a Second Language in a private school in the Arab sector of the Israeli school system. Marie belongs to the Christian community, was born and lives in Haifa. These two teachers were chosen for the intrinsic interest of their stories; neither of them belongs to what is usually thought of as the 'mainstream' of Israeli society (i.e. Jewish, native-born Israelis) yet both are very much a part of the place where they live and their stories have something to say about marginality in teaching.

ARIANA'S STORY

Speaking of her early life, Ariana describes a happy childhood in one of the smaller republics of the former Soviet Union: her family lived together with her maternal grandparents in a small neighborhood with many friends nearby; she was a good student and enjoyed school. Upon immigration, she experienced a very difficult adjustment to life in Israel (see Lieblich,1993): as a student who liked science, got high marks, and played the piano, she was considered "not cool"! Ariana struggled socially throughout elementary and high school, and then, along with her age mates, came the time for military service; for Ariana this period of living on a military base away from home signalled the beginning of her independence. After completing her stint in the army, she went on to university, managing to combine work and studies like many young Israelis. Ariana's first job after graduation was as a guide at a science museum, work she described as inspiring and fun, but it did not seem like a path to a future career. She went on to work on a university research project, a job she described as involving challenge and creativity, but this did not promise a future either, so Ariana finally accepted a teaching position.

Ariana's teaching career

> One thing I knew throughout my childhood was that I would not be a teacher; and here I am, a teacher.

Not only was Ariana surprised to find herself a teacher, she was shocked by the low level of studies in high school science; she found it difficult to deal with students' lack of understanding, and what she saw as self-indulgence and unwillingness to learn. It seemed to her that students "blame their difficulties on me as their teacher." Nonetheless, she felt that "the three years after university were the happiest time of my life." But the social pressure to find a partner and get married weighed heavily on Ariana. She had almost resigned herself to remaining single, when Ariana met her future husband; within the year she had agreed to move with him to a distant city where he was sent by his employer. She spent five unhappy years far from family and friends, teaching in a school she did not like, and meanwhile two children were born to the couple.

At the time of the study, Ariana had recently returned 'home' to the north, to

21

the school and colleagues she left behind. She commented that "at the end of my fourth decade, I find myself at a central crossroad in many respects. The teachers' strike last year opened my eyes to the insignificant status of the teacher in our society, and to the government that is deaf to the wishes and needs of the public." However, beginning graduate studies seemed to have opened a "period of many changes and new beginnings" for Ariana. She concluded her autobiography in an optimistic tone, saying that "today I look upon all the events with relative equanimity; I am enjoying graduate studies and hope for good things in the future."

Flashback: how this story begins…

> I was born in a small town in a far-off country that no longer exists. The place is still there, of course, but the 'bosses' were replaced, the name was changed, the house was destroyed and in its place apartments were built. Everything changed. Then, in 1968, at the end of the legendary 60's, in one of the states of the former Soviet Union, in the small town of O-----, in the local hospital, my mother gave birth to me − a complicated birth.

From this opening passage, we can see how Ariana's story is told with a mythic beginning, in "a far-off country that no longer exists". Loss is a central motif in the story: the country no longer exists, the house was destroyed and everything about the place has been changed. Ariana tells us that even her name is a mystery: "It's not clear how or where, in those years of the Iron Curtain, they found my name – "Ariana", a name that is familiar and even common in other parts of the world, places that at that time were closed to my parents – Italy, Argentina, perhaps Spain." Ariana relates to her birthplace and early life in a nostalgic tone, lovingly recounting the details of her early life in "the legendary 60's." Her story tells of disconnection from the world, at a time when the Iron Curtain blocked travel to other places, and of tenacity: her birth was difficult, she was hungry and came down with pneumonia, but "Soviet medicine was victorious" and she recovered and thrived.

It is noteworthy that the past takes up two-thirds of Ariana's autobiographic text, detailing her childhood, adolescence, and military service, as well as her years at university. The description of her teaching career is minimal, confining itself to the bureaucratic details of where she worked and rather terse judgments about the school and her classes. All this is interwoven with information about the birth of her children, ongoing family difficulties, acclimatization to different settings in which she lived, and, finally, the return to her home town and initial teaching position. The basic plot of this story seems to be one of a journey or quest, beginning in a far-off place and time, with the heroine going through a series of struggles and difficulties, and concluding at the 'crossroads' where Ariana now finds herself, waiting with optimism and hope for the future, and the expectation of a period of changes and new beginnings.

Marginality in Ariana's story

In this story, teaching is portrayed by Ariana as something that 'happens to her' along the way. During her studies and just afterwards, she has 'exciting' and 'creative' work which she leaves to become a teacher, even though "One thing I always 'knew' was that I would not be a teacher, and here I am, a teacher." Notably, Ariana encourages her husband to advance in his career (in part, hoping for a transfer back to the north) years before beginning graduate study herself. Although Ariana is a committed teacher who has undertaken graduate study to develop her professional knowledge base, there is in her story little description of her actual work, pedagogy or teaching approach. It seems that the unsuccessful teachers' strike left her disillusioned and even disconnected from her career: she sees the status of teachers in society as "insignificant", a clear expression of her marginality as a teacher, yet in her own life she is at a "central crossroads", where it seems that the landscape opens out in front of her in several directions. It seems from this account that Ariana has come to see herself as unique, the heroine of her own life story as journey; family, colleagues and friends play an important role in Ariana's story but it seems that she is on her own unique path.

MARIE'S STORY

> I was born in Haifa in July, 1980. I lived for 25 years, till I got married, in a small, simple house in the Wadi Nisnas area. I loved my home… and the neighborhood, a poor area, full of warmth and love… and the room I shared with my older sister and two younger brothers. My parents worked hard and didn't earn much, but we kids didn't realize that. They always bought us what we wanted and often what we didn't want, and we didn't complain.

Telling about her education, in a prestigious private school run by nuns, Marie remembers that she was "one of the top pupils in the class… there were always competitors". From the fifth grade, Marie attended a special class for gifted children once a week, an experience that left a strong impression on her: "I'll never forget the trip to the Weitzman Institute in Rehovot and to Chaim Weitzman's home, the big house and the black car that I'd seen only in old movies… the nitrogen refrigerator, the colour wheel that we made… I remember that I didn't understand anything we were told, I just looked and took in impressions without understanding. " Marie explains that in the 5th grade, her understanding of Hebrew was limited, because " in school the teachers didn't speak Hebrew to us in the Hebrew class, nor did they speak English in the English class."

Injustice and discrimination

In 8th grade, Marie studied French and took part in an essay contest. She was one of the finalists, yet the prize, a trip to France, was awarded to a less talented pupil whose father happened to be a wealthy patron of the school. "I and quite a few other pupils always suffered from discrimination that favored the rich pupils. But I always pitied the rich kids because only the teachers liked them."

At the graduation ceremony, Marie was singled out by the principal who claimed her outfit was not modest enough. She was forced to change into borrowed clothing, felt humiliated, and was inconsolable until she wrote a letter to the principal explaining how she felt. However, a few years later when Marie returned as a teacher to the school, there was a chance encounter in which the principal apologized for hurting her feelings.

Thus Marie's autobiography includes two stories of injustice: one in which the wrong was made right, the other not.

Adult life: Becoming a teacher, seeking a partner

After finishing high school, Marie worked in her father's store to earn money, then applied and was accepted to study English and Education at the university. During her studies she worked part time at several jobs, took part in a volunteer program which gave her a partial scholarship, and completed her degree. All this time Marie was meeting many people and looks for a partner but "each time it didn't work out:" she experienced many of the complexities of courtship and marriage in the Palestinian-Israeli community, as discussed in a critical light by Erdreich (2006).

While still completing her teaching diploma, Marie already found work and began teaching, at the school where she did her practicum ("although during the practicum I felt that no one even noticed me"). She came to the school with high expectations, sure she would "come into an ideal system – education, values, devotion to the work, supportive relationships…I waited for the moment when I would be able to carry out everything I had been taught."

Discovering little had changed since she was at school, Marie decided to do what she believed in: "I went back to the articles and notebooks from the university, applied many new ideas, looked for topics on the Internet… I related to each pupil as an individual, especially the weaker and quieter ones, introduced new methods of teaching English (according to the new curriculum which had not yet been applied in the school). I prepared materials at home, printed, cut and pasted… I just wanted to do good for the pupils."

At the end of her first year of teaching, Marie was told that the teacher she had replaced would be returning. Marie quickly prepared a CV, applied to other schools as well as to graduate studies at the university. She was accepted to the MA program, got a job at the school where she had been a student, and was then asked to continue teaching in her first job. "And I – I went for all of them!" And then, Marie met her future husband.

Marie and her husband were engaged, married a year later, and their son was born in 2006 – just weeks before the 2nd Lebanon War. Marie describes this experience in a list of words, suggesting that the logic needed to form a coherent sentence was simply not available at that time: : "Fear, terror, nerves, tears, updates, near, far, shelter, and the baby." Only a month after the war ended, the school year began; Marie returned to her classroom, feeling unprepared because she had spent her spare time completing university assignments. She "worked while the baby slept… I hardly slept because the baby woke up during the night, and I understood why people say it's not easy…but it's fun, it's beautiful, it's love, warmth, and that's it."

Back to the beginning

As quoted above, Marie's story began simply with her birth in Haifa and her attachment to the city, the neighborhood, the house where she grew up, her room and the people who mattered. Whereas in Ariana's story the opening passage holds important clues to understanding how she tells about her life, in Marie's case it is a sort of "coda" that proves significant. Near the end of the semester, in a discussion of "what is not said" in interviews, Marie volunteered more information: Her father was born in Ikrit, a village in the Galilee that was evacuated during the war of 1948 (when he was 5) and later destroyed by the Israeli army. Her family remained connected to the former residents of Ikrit, participated in demonstrations and legal battles, held picnics on the site of the village. So, Marie added, "actually, I am from Ikrit."

Marie's story is elaborated around a series of themes: relationships are central to the story, as is Marie's connection to her community; hard work, effort and determination pay off; education matters, and teaching is interesting and worthwhile work. Injustice exists; Marie has experienced it in small ways and has sometimes found strategies to resist.

Marginalization in Marie's story

Marie has developed a number of ways to story her experience that seem to help overcome marginalization. For one thing, it seems that all her stories have two (or more) sides, and she avoids falling into polarized positions on the difficult issues that mark her life. Her family story is an example of this. Marie belongs to the small Christian Arab community in Israel, a community that might be perceived as doubly marginalized; but she talks about having many friends, and about meeting many possible partners until she finds "the one". Her family lost their land and village, but preserved a strong sense of belonging to a community, which Marie shares. The story of Ikrit is not included in her written autobiography, but is told spontaneously in the multicultural setting of the course. In writing about her experiences as a new mother during the Second Lebanon War, Marie speaks about

"fear, terror, nerves…", but almost in the same breath says " it's fun, it's beautiful, it's love," a statement which reflects her optimistic and resourceful attitude.

Marie's memories of the past also have two sides. As a schoolgirl visiting the Weitzman Institute, she did not understand the explanations in Hebrew, and could easily have felt marginalized by this Israeli-Zionist landmark, but as a curious and open child she was fascinated and still retains detailed memories. At school she saw and experienced discrimination based on economic status, but early on Marie already felt sorry for the rich kids and was able to see the many sides of their privilege.

Marie's story is told *from a teacher's perspective*: looking back at how she was taught languages, she relates this to the way that second languages are now taught and to her own initiatives in the classroom. Thinking back on the discrimination she experienced at school, she focuses on ways to do things differently in her work, to help weaker pupils to learn. As suggested by Drake et al. (2001), subject matter is central to her elaboration of her teaching identity, and is related clearly to her personal purpose of providing more opportunities for the less advantaged students in her classes.

ARIANA AND MARIE: TWO WAYS OF COPING WITH MARGINALIZATION

Both Ariana's and Marie's stories focus on childhood and include difficult experiences from which the writers have learned; we can see how taking stock of the past helps them make sense of the present. There are some commonalities in the two stories which reflect aspects of the shared situation in which they live and work. Both women "never imagined they would become teachers", yet both are committed and serious about their work (though only Marie writes about it in detail). Both teachers mention good colleagues (as well as others they do not get along with), but for the most part they seem to work alone and without a strong professional community in their schools. Family and friends are central to both stories; and both accounts are elaborated against the implicit or explicit background of longing for another place, yet living clearly grounded in the here and now. Both women story their lives as busy and intense, Ariana with more interruptions and obstacles than Marie. Both are sharply critical of the school system, but do not dwell on what is wrong; each tries to improve things in her own work setting. Graduate studies and professional learning are important to both; Marie, not yet 30, has completed her MA, while Ariana at 40 is still working on her thesis.

It would seem that Marie's story allows her to overcome marginalization and to make a place for herself that is central, first in her family and in her community, and even to a degree within her school as a teacher who goes the extra distance for her students and who is respected by her principal. Ariana's story, on the other hand, seems to be one that accepts marginalization as a "place of possibility" (Huber & Whelan, 1999): learning to cope with the difficulties that being on the outside has brought her over the years, she has become a strong individual who is now able to chart her own path.

LEARNING ABOUT TEACHING AS MARGINAL WORK THROUGH NARRATIVE

As Andrews (2007) suggests, the writer is inevitably at the centre of her autobiography. Thus, if we didn't already know about the marginalization of the teaching profession, these stories might not be the best place to learn about it. However, the stories do highlight strategies used by teachers to deal with the marginality of teaching: we see them fostering and maintaining good personal relationships with colleagues and pupils, acting locally to overcome discrimination by attending to weak pupils, investing judiciously in new programs and methods, seeking out higher education and working towards their own professional development. There is in these particular stories no evidence of teachers organizing with colleagues to change work conditions, to research their practice or to seek out ways of having an impact on the wider school system, strategies which seem to depend on the existence of strong professional communities in the schools (Vescio et al., 2008; Olson & Craig, 2001).

Gender interacts with many other factors that create the marginalization of teaching: in Ariana's story we note the postponement of her studies in favor of her husband's advancement. In both stories we see personal and family concerns competing with the teacher's career (although Marie manages to juggle both very adroitly). We see teaching as a 'leaky' practice overlapping with mothering and caring (Griffiths, 2006), in ways that contribute to the significance of both teachers' work.

Putting teaching at the center

If we can learn from these two quite particular stories, there are a number of lessons for teacher educators. Teacher education programs can be more proactive in raising awareness, by encouraging the reading, writing and interpreting of teachers' stories as part of the teacher education curriculum. Fostering skills of collaborative work, and making more space for the study of social/political and organizational aspects of teaching, would also contribute greatly to educating teachers who are more aware of their own place in the system and their potential role as agents of change.

Marginalization and teacher research

Not unlike teachers, researchers on teaching – especially those who aim to study teaching close up and from the perspective of teachers and students themselves, are increasingly being marginalized by policy-makers and funding agencies. Qualitative research, and narrative methods in particular seem remote from the growing demand in many countries for random-based trial research, for generalizable studies, and for evidence-based practice. Like Ariana, we can accept marginalization and continue doing our work. Like Marie, we can look for ways to respond by identifying and highlighting the ways that our research speaks to practical concerns, by allowing for a clear understanding of teaching as practice,

by highlighting the 'dark corners' of schooling, and by viewing teaching as a career that develops and changes over time (Griffiths, 2007). Probably we would be wise to learn from both teachers' strategies, making this story of marginalization a "place of possibility' by continuing to seek for ever more adequate understandings of teaching from the inside, while at the same time continuing to initiate dialogue on the central issues of teaching that concern teachers, researchers, and policymakers, as members of society.

REFERENCES

Andrews, M. (2007). Exploring cross-cultural boundaries. In D.J. Clandinin (Ed.), *Handbook of narrative inquiry: Mapping a methodology (pp.489−511)*. Thousand Oaks, CA: Sage.

Apple, M. (1987). The de-skilling of teaching. In F.S. Bolin & J.M. Falk (Eds.) *Teacher renewal: Professional issues, personal choices* (pp. 59−75). New York & London: Teachers College Press.

Arieli, M. (1995). *Teaching and its discontents*. Tel-Aviv: Ramot, Tel-Aviv University. (Hebrew)

Bakhtin, M. (1981). *The dialogical imagination*: Four essays by M. M. Bakhtin, ed. M. Holquist. Austin: University of Texas Press.

Ballet, K., Kelchtermans, G. & Loughran, J. (2006). Beyond intensification towards a scholarship of practice: Analysing changes in teachers' work lives. *Teachers and Teaching: Theory and Practice* 12, 209–229.

Bateson (1990). *Composing a life*. New York, NY: Plume.

Bloom, L. (1996) Stories of one's own: Nonunitary subjectivity in narrative representation. *Qualitative Inquiry,* 2(2), 176−197.

Brown, L.M. & Gilligan, C. (1992). *Meeting at the crossroads: Women's psychology and girls' development.* New York: Ballantine.

Clandinin, D.J. **&** Connelly, F.M. (2000). *Narrative inquiry: Experience and story in qualitative research*. San Francisco: Jossey Bass.

Clandinin, D.J. & Connelly, F.M. (1996). Teachers' professional knowledge landscapes: Teacher stories – stories of teachers – school stories – stories of school. *Educational Researcher*, 19(5), 2−14.

Conle, C. (1999). Why narrative? Which narrative? Struggling with time and place in life and research. *Curriculum Inquiry,* 29(1), 7−32.

Davies, B., Davies & Gannon, S. (2006). *Doing Collective Biography.* Maidenhead & New York, Open University Press.

Drake, C., Spillane, J. & Hufferd-Ackles, K. (2001). Storied identities: Teacher learning and subject-matter context. *Journal of Curriculum Studies*, 33(1), 1−24.

Eilam, B. (2002). "Passing through" a western-democratic teacher education: The case of Israeli Arab teachers. *Teachers College Record,* 104(8), 1656−1701.

Elbaz-Luwisch, F. & Kalekin-Fishman, D. (2004). Professional development in community: Fostering multicultural dialogue among Israeli teachers. *British Journal of In-service Education*, 30, 2, 245−264.

Elbaz-Luwisch, F. (2002). Writing as inquiry: Storying the teaching self in writing workshops. *Curriculum Inquiry*, 32(4), 403−428.

Elbaz-Luwisch, F. (2004). Immigrant teachers: Stories of self and place. *International Journal of Qualitative Studies in Education*, 17, 3.

Erdreich, L. (2006). Marriage talk: Palestinian women, intimacy, and the liberal nation-state. *Ethnography* 7(4), 493−523.

Estola, E., Erkkilä, R., & Syrjälä, L. (2003). A moral voice of vocation in teachers' narratives. *Teachers and Teaching: Theory and Practice*, 9(3), 239–256.

Gitlin, A. & Margonis, (1995). The political aspect of reform: Teacher resistance as good sense. *American Journal of Education,* 103(4), 377−405.

Giddens, A. (1991). *Modernity and self-identity: Self and society in the late modern age*. Cambridge: Polity Press.

Goodson, I.F. (1992). Sponsoring the teacher's voice: Teachers' lives and teacher development. In A. Hargreaves, & M. Fullan (Eds.), *Understanding teacher development* (pp. 110−121). London: Cassell, and New York: Teachers College Press.

Greene, M. (1995). *Releasing the imagination: Essays on education, the arts, and social change*. San Francisco: Jossey-Bass Publishers.

Griffiths, M., & MacLeod, G. (2007). Personal narratives and policy: Never the twain? Paper presented at ECER annual meeting, Ghent.

Griffiths, M. (2006). The feminization of teaching and the practice of teaching: Threat or opportunity? *Educational Theory, 56*(4), 387−405.

Hargreaves, D. (1994). The new professionalism: the synthesis of professional and institutional development, *Teaching and Teacher Education, 10*(4), 423–438.

Hargreaves, A. (2003). *Teaching in the knowledge society: Education in the age of insecurity*. New York: Teachers' College Press and Buckingham: Open University Press.

Heikkinen, H. (1998). Becoming yourself through narrative: Autobiographical approach in teacher education. In R. Erkkila, A. Willman, & L. Syrjala (Eds.), *Promoting teachers' personal and professional growth* (pp. 111−131). Oulu: Oulu University Press.

Heilbrun, C. (1988). *Writing a woman's life*. New York: W.W. Norton.

Huber, J., & Whelan, K. (1999). A marginal story as a place of possibility: Negotiating self on the professional knowledge landscape. *Teaching and Teacher Education, 15*(4), 381−396.

Lieblich, A. (1993). Looking at change: Natasha, 21, New immigrant from Russia to Israel. In R. Josselson, & A. Lieblich (Eds.), *The Narrative Study of Lives*, Vol. 1 (pp. 92−129). Newbury Park, CA: Sage.

Lyons, N. (2007). Narrative inquiry: What possible future influence on policy or practice: In D.J. Clandinin (Ed.), *Handbook of narrative inquiry: Mapping a methodology (pp. 600−631)*. Thousand Oaks, CA: Sage.

McLeod, D., & Cowieson, A. (2001). Discovering credit where credit is due: Using autobiographical writing as a tool for voicing growth. *Teachers and Teaching: Theory and Practice, 7*(3), 239−256.

Naphcha, M. & Nir, A. (2008). Teachers' salaries in Israel and in the OECD countries: Similar or different? *Studies in Educational Administration & Organization 30*, 81−100. (Hebrew)

Nias, J. (1993). Changing times, changing identities: Grieving for a lost self. In R.G. Burgess (Ed.), *Educational Research and Evaluation* (pp. 139−156). London: Falmer Press.

Olson, M. R., & Craig, C.J. (2001). Opportunities and challenges in the development of teachers' knowledge: The development of narrative authority through knowledge communities. *Teaching and Teacher Education*, 17, 667−684.

Phelan, A.M. (2001). Power and place in teaching and teacher education. *Teaching and Teacher Education*,17(5), 583−597.

Plunkett, M. (2001). Serendipity and agency in narratives of transition: Young adult women and their careers. In D.P. McAdams, R. Josselson, & A. Lieblich (Eds.), *Turns in the road: Narrative studies of lives in transition* (pp. 151−175). Washington, DC: American Psychological Association.

Polkinghorne, D.E. (1995). Narrative configuration in qualitative analysis. *Qualitative Studies in Education, 8*(1), 5−23.

Vandenberghe, R., & Huberman, A.M. (1999). (Eds), *Understanding and preventing teacher burnout: A sourcebook of international research and practice.* Cambridge University Press.

Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional learning communities on teaching practice and student learning. *Teaching and Teacher Education*, 24(1), 80−91.

Wilhelm, K, Dewhurst-Savellis, J. & Parker, G. (2000). Teacher stress? An analysis of why teachers leave and why they stay. *Teachers and Teaching: Theory and Practice*, 6(3), 291−304.

Woods, P. (1999). Intensification and stress in teaching. In R. Vandenberghe, & A.M. Huberman (Eds), Understanding and preventing teacher burnout: a sourcebook of international research and practice (pp. 115−138). Cambridge University Press.

CHAPTER 2

INNATE TEMPERAMENT EXPLAINS TOO MUCH FROM A STUDENT'S SCHOOL ACHIEVEMENT?

Liisa Keltikangas-Järvinen and Sari Mullola

INTRODUCTION

A contribution of temperament in schooling started with quite a simple and innocent question of some young researchers. They asked teachers what are the children like who are actually having trouble in school, and what are the children like that are getting well (e.g., for review see Martin, 1989). The teachers did not respond with cognitive terms, but described the students' temperaments. They didn't attribute an academic success or lack of it to motivation, intelligence or cognitive skills but to a student's temperament.

Temperament refers to a biologically rooted and innate behavioral style or behavioural tendencies that are present in early life, and are relatively stable across various situations and over the course of time (see e.g., Bates, 1989; Angleitner & Ostendorf, 1994; Goldsmith, Lemeny, Aksan, & Buss, 2000; Caspi, 1998; Caspi, Elder, & Bem, 1988). It contributes to the uniqueness of individuals and forms a core that provides a foundation for later developmental personality (for reviews, see Posner & Rothbart, 2007; Rothbart, 2007; Rothbart & Bates, 2006). Spesifically, temperament answers to the question *"how"* but not to the questions of *"what"*, *"why"*, or *"how well"* (Tomas & Chess, 1977; Thomas & Chess, 1980). It tells how quickly a person takes a pen (i.e., individual's unique adjustment to his/her environment), but it doesn't tell why a person takes a pen or what he or she is going to write (i.e., the ability and/or motivation for the reaction). Thus, temperament is a style of a reaction, or a tendency to react in a certain individual way.

There are several temperament theories and definitions that vary somewhat in specifics and emphases (e.g., for review see Strelau, 1998). However, all theories share a high consensus that a content of temperament can be covered with the following five dimensions: (1) a general emotional tone, that is a tendency to be always cheerful, or a constant disposition to a bad temper, (2) a level of sociability and a tendency to have a positive mood, traits are usually related to an easy approaching of novel things and new people, (3) a level of adaptability and experience seeking, (4) person's tendency to express fears and anger and his or her likelihood to get worried, and (5) a tempo, vigor and time frame of one's actions (e.g., for reviews, see Keogh, 2003; Strelau, 1998; Kristal, 2005).

Especially important in the current context is the fact that temperament is a

tendency or style that is rather independent of intelligence or cognitive skills; only low to moderate correlations between IQ and temperament have been found (for reviews, see Strelau, 1998; Guerin, Gottfried, Oliver, & Thomas, 2003) and IQ has been shown to moderate a relation between temperament and school achievement (Oliver, Guerin, & Gottfried, 2007; Newman, Noel, Chen, & Matsopoulos, 1998). There is the same distribution of temperament traits at all levels of intelligence; i.e., there are intelligent and unintelligent active, sensitive and flexible people. If we agree with the evidently documented findings that temperament is related to student's motor activity and energy levels, ability to focus, persistence, reactions to novelty, and to sensitivity, it is also reasonable to agree with the statement that temperament contributes to how a student learns, adapts and experiences a school environment.

School demands may be differentiated into two categories: (1) Academic performance and achievement, and (2) Socially appropriate and interpersonal behavior. Both categories are highly contributed by temperaments (for reviews, see Keogh, 2003; Strelau, 1998; Kristal, 2005). Educational psychologists have developed a concept of "teachability", which reflects the teachers' view of the attributes of a model student, and is affected by three primary factors consisting of temperamental dimensions (for reviews, see Keogh, 1989; Keogh, 2003; Keogh, 1982; Keogh, Pullis, & Cadwell, 1982). The first of these is labelled "task orientation", that is related to attention and to a way how a student approaches a learning task (Keogh et al., 1982; Martin, 1989; Caspi, 1998). It consist of three temperaments dimensions, that are Activity (e.g., frequency and intensity of motor activity), Distractibility (e.g. the ease with which a student's attention, especially ongoing task-related school behaviour, can be interrupted by low-level environmental stimuli), and Persistence (e.g. attention span, and the tendency to continue seeking a solution to difficult learning problems) (Martin, 1989; Windle & Lerner, 1986). It is well-documented in the literature that a constellation of high distractibility, high activity, and low persistence is likely lead to an underachievement (for reviews, see Keogh, 1989; Keogh, 1994; Keogh, 2003). Underachieving doesn't mean a drop out but too low school grades comparing with a student's actual capacity. Temperament-related underachievement is the most probable among students who perform neither well nor worse, and a discrepancy between grades and capacities remains therefore often unrecognized.

The second category of teachability is "Personal-social flexibility", which comprises an easy approaching of new and novel things, positive mood, and high adaptability in new and unexpected circumstances (Keogh, 1989; Keogh, 2003). Likewise an underachieving caused by high activity and distractibility and low persistence has been documented, so is documented a positive effect of personal social flexibility. Students' with positive mood and high adaptability have been shown to receive higher school grades than might be expected on the basis of standardized achievement tests (Keogh, 1994).

The last category of "teachability" is Reactivity, that consists of Negative mood, Intensity of responses, and High reactivity (Keogh, 1989; Keogh, 2003). This kind of student is mostly in a bad temper, his or her threshold of reactions is very low,

and his or her reactions are very intensive. A person with high reactivity is always very present, and everyone knows when he or she is disappointed or unsatisfied. This temperament highly determines how much the teacher likes the student (Keogh, 1994) and influences the quality and quantity of teacher-student interaction and relationship (Rudasill & Rimm-Kaufman, 2009; Silver, Measelle, Armstrong, & Essex, 2005). It has been also documented that low-reactivity students are perceived mature, and high in cognitive abilities by the teachers, and consequently, high-reactivity students are seen as immature, and low in cognitive skills and capacity (e.g., see Keogh, 2003; Keogh, 1994; Martin, Olejnik, & Gaddis, 1994).

Because the role of temperament is really important in school context, its contribution to the school grades as well as to the teachers' perceptions needs to be studied. The more the teachers' personal expectations, opinions and values can influence the student's grades, the more important is an understanding the basis of those expectations and values. This is of general importance, but especially true with Finnish school settings where the school grades are not based on national standardized tests but are based on teacher fixed examinations and model examinations offered by the authors of the school books.

Although the Finnish educational system may be internationally known, we will still describe it here again. The system consists of nine years of compulsory schooling at comprehensive schools that is followed by three years schooling at high schools or vocational institutions. Comprehensive school consists of primary school that takes six years, and is followed by the three year lower secondary school. Our system is very effective: 97% of each age cohort completes the comprehensive school, and 97% completes the secondary education. Approximately 7% of these students are under individual supervision, 2% in special classes, and less than 1% leaves without education. The Finnish comprehensive school gives the most appropriate frame of reference to the "real-life experiment", because the whole age cohort can be contacted owing to the fact that there are no private schools or parallel school systems, or at least they all follow the same curriculum supervised by the Ministry of Education. Furthermore, all teachers are similarly educated and they have all the university education.

METHODS

Participants

As a part of a large and national study (Alatupa, Karppinen, Keltikangas-Järvinen, & Savioja, 2007) we examined teachers' perceptions of students' temperament and educational competence, and the contributions of those ratings to teacher-rated school grades at the second stage of the comprehensive school. We also asked whether temperament plays different roles in different school subjects, and whether a gender of a student or a gender of a teacher plays a significant role.

We took a geographically representative sample of 4255 students at the last stage of the comprehensive school. This is approximately 10% of the respective cohort.

As shown in Figure 1, Finland was geographically divided into five counties. From each county, 10% of the Finnish-speaking schools were randomly selected, a total of 64 schools. 11 schools rejected, and the sample was completed according to the original random list. The original sample comprised 5992 students, and the complete data was available for 4255 students. From the teachers, the home room teacher, and the teachers of Math and Mother Language were also asked to participate. This was a total of 274 teachers.
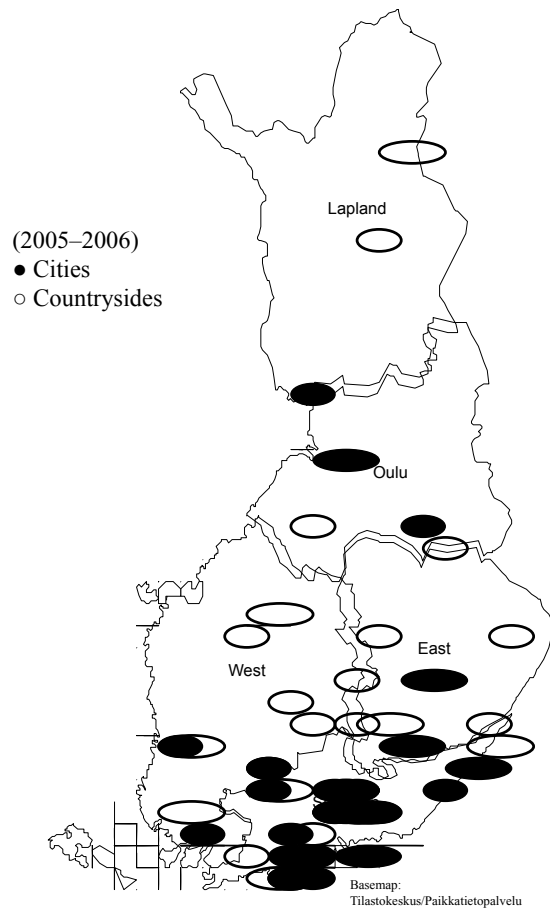
Figure 1. The sampling of the study.

Measures

The teacher-rated temperament of the participants was measured by four scales from the Temperament Assessment Battery for Children – Revised (TABC-R; Martin & Bridger, 1999) and two scales from the Revised Dimensions of Temperament Survey (DOTS-R; Windle & Lerner, 1986) comprising 41 items altogether rated on a five-point scale ranging from one *(strongly disagree)* to five *(strongly agree)*. The temperament dimensions addressed in the TABC-R are Activity, Persistence, Inhibition, and Negative Emotionality. The temperament dimensions addressed by the DOTS-R are Mood, and Distractibility. The original factor structure of the TABC-R (Martin & Bridger, 1999) and DOTS-R (Windle & Lerner, 1986) was replicated in this sample. The Cronbach's alpha reliabilities for the scales were .81-.96.

The teacher-rated EC of the participants was assessed by three scales covering Motivation, Maturity, and Cognitive Ability. All the items were rated on a five-point scale ranging from one *(strongly disagree)* to five *(strongly agree)*. The Cronbach's alpha reliabilities for the scales varied from .86 to .90. Because the intercorrelations between these three scales were also rather high ranging from .62 to .67, we created one factor called Educational Competence (EC), which comprises them all. The Cronbach's alpha reliability for the EC scale was .92. The factor analysis with Maximum Likelihood extraction and oblimin rotation also supported the one-factor solution. These procedures were followed in order to reduce possible multicollinearity between the study variables (Aiken & West, 1992).

The respective grades were taken from the students' latest school report for ML and Math (range = 4-10; 4 is fail, 5-6 poor, 7-8 good and 9-10 excellent) they received at the end of each academic term and school year.

Statistical analysis

To investigate the research questions we conducted a series of linear hierarchical regression analyses (Aiken & West, 1992; Sobel, 1982; Baron & Kenny, 1986), and hierarchical linear modelling (HLM; Singer, 1998; Singer & Willett, 2003; Bryk & Raudenbush, 1992; Boyle & Willms, 2001) assuming a model building strategy suggested by Singer (1998) and Singer and Willett (2003). We used SPSS software, Version 15.0.

RESULTS

First we asked whether temperament correlates with school grades, and the answer is yes. As a result of a series of linear regression analyses (Aiken & West, 1992; Sobel, 1982; Baron & Kenny, 1986) we found that all temperament traits to be used here, i.e., Activity, Persistence, Distractibility, Inhibition and Negative Emotionality were highly correlated and significantly associated with both ML and Math grades,

explaining together 28% and 29% of the variance, respectively.

Secondly we asked whether temperament plays different roles in different school subjects. In our Finnish sample, no subject related differences existed but the variance to be explained was similar.

Thirdly we asked whether the association between teacher-perceived temperament and school grades would be mediated or moderated by teacher-perceived EC. When the teacher perceived educational competence was added into the regression model, it resulted in 8% increase (a total of 37%) when predicting ML, and 9% increase (a total of 39%) when predicting Math. It was shown that teacher-rated educational competence mediated an association between temperament and Math grade and between temperament and ML grade.

Furthermore, the regression analysis revealed a significant interaction between teacher-perceived educational competence and temperament for Math grade (figure 2). Activity and Distractibility were negatively and significantly related to the Math grade among students with high EC, but not among students with low EC. High negative emotionality predicted low Math grade among students with low EC. Instead considering persistence, low level of persistence predicted low Math grade among both high and low EC students.

Finally, our hierarchical multilevel modelling (HLM; Singer, 1998; Singer & Willett, 2003; Bryk & Raudenbush, 1992) results suggest a significant and systematic association between teacher's gender and student's gender on the relationship between the teacher perceived student's temperament, EC (including the dimensions of cognitive ability, motivation, and maturity), and teachability. Male teachers rated girls higher in activity and negative emotionality and lower in persistence and educational competence when compared with female teachers.

High Educational Competence	X	Low Distractibility	⇨	High Math grade
Low Educational Competence	X	High Negative Emotionality	⇨	Low Math grade
High or Low Educational Competence	X	Low Persistence	⇨	Low Math grade
High Educational Competence	X	Low Activity	⇨	High Math grade

Figure 2. The results of the linear regression analysis estimating the interaction between Activity, Distractibility, Negative Emotionality, and Persistence (respectively from top to bottom) and the Math grade as a function of high and low Educational Competence (EC).

DISCUSSION

We found, that teacher-perceived student's temperament was significantly associated with both ML and Math grades, explaining even approximately third of the variance of both subjects. Furthermore, high teacher-perceived EC (i.e., cognitive ability, motivation and maturity) predicted both high ML and Math grades: the teachers were likely to consider well-performing students high in educational competence or vice versa, to give high grades to mature and motivated students. Our results are in line with the results of previous studies (Martin, 1989; Keogh, 1994; Keogh et al., 1982) and support the role of "task orientation" in teachers' perceptions (for reviews, see Keogh, 2003; Martin, 1989; Strelau, 1998).

It has been previously suggested that a task orientation (i.e., persistence, activity and distractibility) correlates especially strong with Math but not with ML (Martin & Holbrook, 1985), while conflicting findings exist, too (Guerin, Gottfried, Oliver, & Thomas, 1994; for a review, see Strelau, 1998). In our Finnish sample, no subject related differences existed but temperament traits together explained 28% of ML grades and 29% of Math grades variance when the findings were adjusted for within the correlations of temperament traits.

Furthermore, it was shown that teacher-rated EC mediated an association between temperament and both ML and Math grades; i.e., teachers were likely to interpret temperament traits as reflecting maturity and motivation. Our findings also showed that if a teacher rated a student high in educational competence (i.e., mature, motivated and high in cognitive capacity) and low in temperamental activity, he/she was likely to give him/her high grades in Math. Because this was a cross-sectional study, an inverse explanation is also possible.

A contribution of task orientation to school grades has been shown in the previous literature (for reviews see Martin, 1989; Keogh et al., 1982; Keogh, 2003; Kristal, 2005). Our Finnish sample had however one specialty, that has not been shown previously. Negative emotionality (i.e., likelihood to express the feelings, especially negative ones, strongly and intensively) was seen as a handicap to the student in Finland. If it was associated with the low teacher-rated educational competence, it would be likely to lead to a low Math grade. This is not surprising in the Finnish culture where "control yourself", is a very common and important guideline. However, it is justified to ask, what temperamental negative emotionality has to do with mathematics? At least, that significant contribution of negative emotionality as shown in our study has not been found in other cultures.

Considering gender differences teachers perceived boys higher in Activity, Distractibility, Inhibition, and Negative Emotionality, and girls higher in Persistence, Mood, and Educational Competence. All differences were statistically significant and mostly very large. This was particularly true with Educational Competence, Persistence and Distractibility. These findings rather clearly show how differently the teachers see the boys and the girls, and those perceptions are not evidence based but are likely to reflect the teachers' own values and expectations.

Interestingly, male teachers seemed to be stricter or more critical on their perceptions of girls' traits than female teachers. They rated girls higher in Activity and

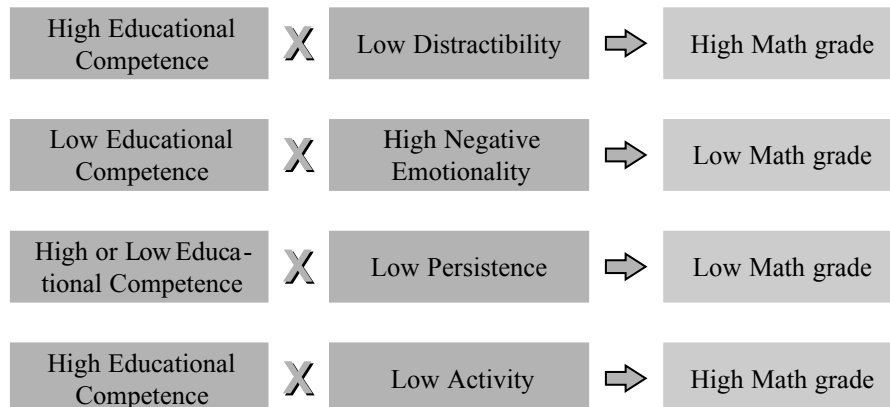Negative Emotionality and lower in Persistence and Educational Competence when compared with female teachers. Our findings also indicate that male teachers were likely to underestimate girls.

CONCLUSIONS

To conclude, our findings suggest that teachers need more information about the influence of temperament in order to differentiate cognitive skills and behavioural styles, and consequently to ensure equitable treatment for all students. At least, teachers should recognize their own temperament-based attitudes and expectations. This is important for two main reasons. First, temperament differs from intelligence, cognitive ability, maturity and motivation. Teachers who do not understand how temperament affects a child's behavior may misinterpret certain behaviors as disobedience which could result in classroom difficulties and negative interactions for both teacher and student. Secondly, the school report students receive at the end of their ninth year has a significant and far-reaching role in their future and in their academic lives. Thus, the determination of their school grades should be as unambiguous as possible. Higher sensitivity among educators to the temperament of students, including the very bright and the underachievers, would increase the quality of school experiences for both students and teachers.

REFERENCES

Aiken, L. S. & West, S. G. (1992). *Multiple regression: Testing and interpreting interactions,* Sage Publications: Newbury Park, CA.

Alatupa, S. (Ed.), Karppinen, K., Keltikangas-Järvinen, L., & Savioja, H. (2007). *Koulu, syrjäytyminen ja sosiaalinen pääoma – Löytyykö huono-osaisuuden syy koulusta vai oppilaasta?* [*School, drop out, and social capital*]. Helsinki: Sitran raportteja 75, Edita Prima Oy.

Angleitner, A. & Ostendorf, F. (1994). Temperament and the big five factors of personality. In C.F. Halverson, G.A. Kohnstamm, & R.P. Martin (Eds.), *The development structure of temperament from infancy to adulthood* (pp. 69–90). Mahwah, NJ: Lawrence Erlbaum Associates.

Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Bates, J. E. (1989). Concepts and measures in temperament. In G.A. Kohnstamm, J.E. Bates, & M.K. Rothbart (Eds.), *Temperament in childhood* (pp. 3–26). Chichester, England: Wiley.

Boyle, H. B., & Willms, J. D. (2001). Multilevel modelling of hierarchical data in developmental studies. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 42*(1)*,* 141–162.

Bryk, A. S., & Raudenbush, S. W. (1992). *Hierarchical linear models.* Newbury Park: Sage Publications.

Caspi, A. (1998). Personality development across the life course. In W. Damon (Ed.-in-Chief) and N. Eisenberg (Vol. Ed.) *Handbook of child psychology: Vol. 3. Social, emotional and personality development* (5th ed., pp. 311–388). New York: John Wiley & Sons.

Caspi, A., Elder, G. H., Jr., & Bem, D. J. (1988). Moving away from the world: Life-course patterns of shy children. *Developmental Psychology, 24,* 824–831.

Goldsmith, H. H., Lemeny, K. S., Aksan, N., & Buss, K. A. (2000). Temperament substrates of personality development. In V.J. Molfese & D.L. Molfese (Eds.), *Temperament and personality development across the life span* (pp. 1–32). Mahwah, NJ: Lawrence Erlbaum Associates.

Guerin, D. W., Gottfried, A. W., Oliver, P. H., & Thomas, C. W. (1994). Temperament and school functioning during early adolescence. *Journal of Early Adolescence, 14,* 200–225.

Guerin, D. W., Gottfried, A. W., Oliver, P. H., & Thomas, C. W. (2003). *Temperament infancy through adolescence.* New York: Kluwer Academic/Plenum Publishers.

Keogh, B. K. (1982). Children's temperament and teachers' decisions. In R. Porter & G.M. Collins (Eds.), Ciba Foundation Symposium 89, *Temperamental differences in infants and young children* (pp. 269–285). London: Pitman.

Keogh, B. K. (1989). Applying temperament research to school. In G.A. Kohnstamm, J.E. Bates, & M.K.Rothbart (Eds.), *Temperament in childhood.* Chichester, England: John Wiley & Sons, Ltd.

Keogh, B. K. (1994). Temperament and teachers' views of teachability. In W.B. Carey & S.C. McDevitt (Eds.), *Prevention and early intervention: Individual differences as risk factors for the mental health of children* (pp. 246–256). New York: Brunner/Mazel.

Keogh, B. K. (2003). *Temperament in the classroom: Understanding individual differences.* Baltimore: Paul H. Brookes Publishing Co.

Keogh, B. K., Pullis, M., & Cadwell, J. (1982). Teacher Temperament Questionnaire-Short Form. *Journal of Educational Measurements, 29,* 323–329.

Kristal, J. 2005. *The temperament perspective. Working with children's behavioral styles.* Baltimore: Paul H. Brookes Publishing Co.

Martin, R. P. (1989). Activity level, distractibility, and persistence: Critical characteristics in early schooling. In G.A. Kohnstamm, J.E. Bates, & M.K. Rothbart (Eds.), *Temperament in childhood* (pp. 451–462). Chichester, England: John Wiley & Sons, Ltd.

Martin, R. P., & Holbrook, J. (1985). Relationship of temperament characteristics to the academic achievement of first grade children. *Journal of Psychoeducational Assessment, 3,* 131–140.

Martin, R. P., Olejnik, S., & Gaddis, L. (1994). Is temperament an important contributor to schooling outcomes in elementary school? Modeling effects of temperament and scholastic ability on academic achievement. In W.B. Carey & S.C. McDevitt (Eds.), *Prevention and early intervention: Individual differences as risk factors for the mental health of children.* New York: Brunner/Mazel.

Martin, R. P., & Bridger, R. C. (1999). *The Temperament Assessment Battery for Children –Revised.* Athens: University of Georgia.

Newman, J., Noel, A., Chen, R., & Matsopoulos, A. S. (1998). Temperament, selected moderating variables and early reading achievement. *Journal of School Psychology, 36,* 215–232.

Oliver, P. H., Guerin, D. W., & Gottfried, A. W. (2007). Temperamental task orientation: Relation to high school and college educational accomplishments. *Learning and Individual Differences, 17,* 220–230.

Posner, M. I., & Rothbart, M. K. (2007). *Educating the human brain.* Washington, DC: American Psychological Association.

Rothbart, M. K. (2007). Temperament, development, and personality. *Current Directions in Psychological Science, 16, 4,* 207–212.

Rothbart, M. K., & Bates, J. E. (2006). Temperament. In W. Damon, R. Lerner, & N. Eisenberg (Eds.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (6th ed., pp. 99–166). New York: Wiley.

Rudasill, K. M., & Rimm-Kaufman, S. E. (2009). Teacher-child relationship quality: The roles of child temperament and teacher-child interactions. *Early Childhood Research Quarterly, 24,* 107–120.

Silver, R. B., Measelle, J. R., Armstrong, J. M., & Essex, M. J. (2005). Trajectories of classroom externalizing behaviour: Contributions of child characteristics, family characteristics, and the teacher-child relationship during the school transition. *Journal of School Psychology, 43,* 39–60.

Singer, J. D.(1998). Using SAS Proc Mixed to fit multilevel models, hierarchical models, and individual growth curves. *Journal of Educational and Behavioural Statistics,* 24(4), 323–355.

Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis.* New York: Oxford University Press.

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In S. Leinhardt (Ed.), *Sociological Methodology* (pp. 290–312). Washington, DC: American Sociological Association.

Strelau, J. (1998). *Temperament: A psychobiological perspective.* New York: Plenum Press.

Thomas, A., & Chess, S. (1977). *Temperament and development.* New York: Bruner/Mazel.

Thomas, A., & Chess, S. (1980). *The dynamics of psychological development.* New York: Brunner/Mazel.

Windle, M., & Lerner, R. M. (1986). Reassessing the dimensions of temperamental individuality across the life span: the Revised Dimensions of Temperament Survey (DOTS-R). *Journal of Adolescent Research, 1,* 213–230.

THE ROLE OF CRISIS IN THE DEVELOPMENT OF STUDENT TEACHERS' PROFESSIONAL IDENTITY

Paulien C. Meijer

One of my biology student teachers two years ago, Roeland, age 25, was teaching three groups of pupils at a secondary school. He had signed up for teacher education because he could not find his 'dream' job – being a university teacher – and following the teacher education programme seemed to be 'not a big waste of time' because in his plans he also had to teach, but to university students. To give some contextual information: the teacher education programme where I was working is built as a dual programme, so that student teachers start teaching right from the start, parallel to following courses and seminars at the institute. It is also a post-masters programme, so Roeland already had a master's degree in biology. Roeland came to my office during the autumn fall holidays – after two months of teaching. He was in serious crisis, at school and in his personal life as well. Everything fell apart, he said; he felt paralysed by a huge feeling of uncertainty in all aspects of his live. He looked exhausted and in despair. I just let him talk and talk and he reported, for example, how his pupils had not done the homework for his lesson and although he knew that pupils 'were like that', he suddenly felt betrayed and angry. He had put so much time and energy into his lesson and the lesson failed because the pupils hadn't even done their small bit of preparation. It had happened before, but now he was overwhelmed by his anger and sense of powerlessness and he did not know how to cope with these feelings. He kept on saying, 'what am I doing it for? what's the use?' We talked for some time in which I told him how other student teachers go through such crises as well and had some suggestions for what he might do to find the answers to his questions. Actually, I didn't have much time for him at that moment, but he left feeling relieved, he said. Three days later, there he was again. He had taken two days off, had gone biking and he said: 'I'm so delighted! I'm back! It feels so different now!' He said that during his biking trip he suddenly knew: I'm doing it for my pupils… He had said that to himself before, but now he *felt* it, he said. He had found his answers, he felt committed.

Just a few weeks later he could not imagine he would ever have wanted to do anything else but teaching to exactly this type of students: secondary school pupils. 'It sounds strange,' he said, 'but it feels like I'm at home at school'. He worked hard and became one of our top student teachers.

I would like to relate what happened to Roeland to some quite common practices in teacher education, to definitions about the development of professional identity in teaching and to theories about learning, specifically in adults. Then I will combine these two and focus on the concept of transformative learning and the role of crisis in the development of student teachers' professional identity. I will state that you need a crisis in order to grow and I will go into the questions, 'how do you do this?' and 'how can others support this?' The latter pertains specifically to the teacher education institute so, in conclusion, I will draw some implications of including such a focus in teacher education practices.

SOME COMMON PRACTICES IN TEACHER EDUCATION

After more than ten years of working as a teacher educator and researcher and a few years as a secondary school teacher, I had trouble seeing the link between theories about learning to teach and my own experiences with student teachers, both as a teacher educator and a researcher in the field of teacher learning. My department started working with developmental models to grade the amount in which student teachers mastered the various elements of teaching. Gradually building your teaching skills, was the idea. Steady growth. And although these models were not used in a tight way but rather flexibly, they did not seem to capture the most profound learning moments that my student teachers, such as Roeland, went through.

Like many institutes for teacher education, my department considered the development of a professional identity as central and defined it as (Beijaard, Meijer & Verloop, 2004):
– an ongoing process of interpretation and re-interpretation of experiences;
– implying both person and context;
– consisting of sub-identities that more or less harmonize with each other;
– asking for an active role of the student teacher.

And like many institutes for teacher education, my department's foremost aim in its pedagogy was the reaching of standards for which the link with the concept of professional identity is not quite obvious.

Let me state that I have nothing against raising standards and trying to reach them. On the contrary, I have found such standards very useful in supervising student teachers and for purposes of feedback and self-assessment for student teachers. Student teachers know what is expected of them and, if the standards are high, it provides them with a challenge which they mostly welcome. But we all know the dangers of teaching to the test and if the standards reflect a learning process that is only a part of what is happening or *should* happen, our pedagogy is impeded by such standards and, as a consequence, student teachers' learning might be as well.

Why is the view of learning to teach as steady growth not sufficient? As I said, one way or the other, I did not understand how this view relates to the student and beginning teachers that I was supervising. Their struggles and frustrations went hand in hand with outbursts of excitement and joy. Yes, it was dynamic, but it was

not the general steady growth that researchers and teacher educators talked about. It seemed a rocky path of highs and lows and, to be honest, I was most concerned about the few student teachers who did *not* report such highs and lows. I will come back to them later in this chapter. But most student teachers *do* report crises and sometimes these look like the notorious practice shocks; they are very emotional and influence the student teacher's whole life at such moments. Roeland's experience is an example of this. Before going deeper into the role of such crises, I will first focus more closely on the concept of teachers' professional identity.

SOME THEORETICAL NOTIONS ABOUT TEACHER PROFESSIONAL IDENTITY AND DEVELOPMENT

Teacher identity is an issue of growing interest. The 2008 *Handbook of research on teacher education (*Cochran-Smith, Feiman-Nemser, McIntyre, & Demers, 2008) for the first time devotes a chapter to the issue and a quick search in the Social Sciences Citation Index on 'teacher identity' results in an increasing number of hits during the last two decades (see Figure 1).
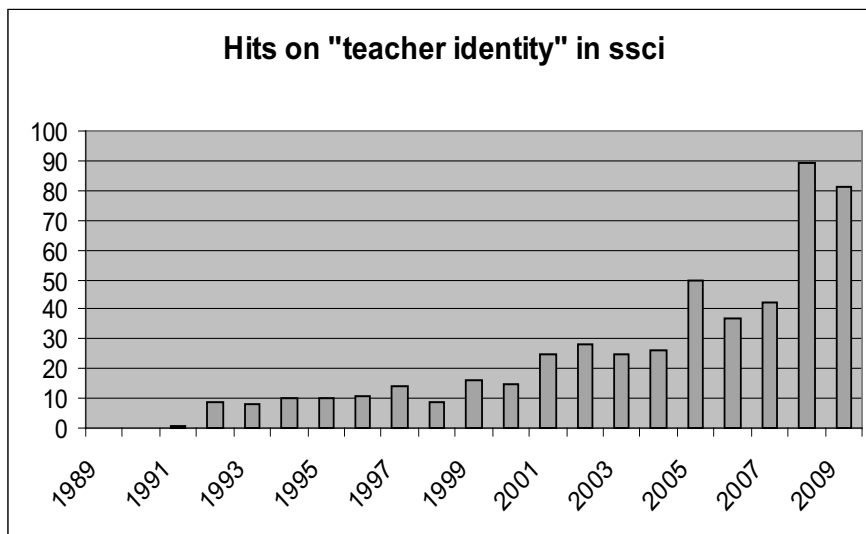
Figure 1. Number of hits on 'teacher identity' in the Social Sciences Citation Index 1989–2009.

As can be seen in Figure 1, teacher identity as a concept in academic literature came up in the early nineteen-nineties, in the early years of the 21st century interest increased and since 2008 interest in the concept expanded rapidly. In the early years of the 21st century, most academic literature on teacher identity focuses on

describing the various aspects of the concept, for example by Andy Hargreaves, Geert Kelchermans, Christopher Day and Maria Flores and Klaas van Veen (e.g., Flores & Day, 2006; Van Veen, Sleegers & Van de Ven, 2005). Over the last two or three years, interest has focused more on the formation and *development* of teacher identity, with publications such as Schepens, Aelterman and Vlerick (2009), Jephcote and Salisbury (2009) and Trent and Gao (2009).

In the *Handbook of research on teacher education*, Rodgers and Scott (2008) summarize contemporary conceptions of identity to share four basis assumptions:
1. that identity is dependent upon and formed within *multiple contexts*;
2. that identity is formed in *relationship* with others and involves *emotions*;
3. that identity is *shifting, unstable and multiple*; and
4. that identity involves the *construction and reconstruction* of meaning through *stories* over time (p. 733; italics added).

Rodgers and Scott argued that implicit in these assumptions is that teachers should 'make a psychological shift in how they think about themselves as teachers' (p. 733), but they also found that this psychological shift is a 'black box' about which we know little. It is of course a difficult psychological shift, because such a shift appears to result in a professional identity that is unstable and multiple. In their review on research on teachers' professional identity, Beijaard et al. (2004) noted that:

> [Teacher identity] can be best characterized as an ongoing process, a process of interpreting oneself as a certain kind of person and being recognized as such in a given context. In this context then, identity can also be seen as an answer to the recurrent question: 'who am I *at this moment*?' (p. 108).

And Parker Palmer (1998) stated that 'identity is a *moving intersection* of the inner and outer forces that make me who I am' (p. 13). Rodgers and Scott (2008) found that most studies about teacher identity and identity formation were theoretical in nature and that empirical studies were rather scarce. One of the reasons for this might be the absence of links between literature about teacher identity and the type of learning that is required for identity shifts to occur. Below, I will very briefly recount some general learning theories and illustrate why teacher educators do not automatically account for the type of learning that is required for identity development.

SOME THEORETICAL NOTIONS ABOUT (ADULT) LEARNING

Piaget (e.g. 1952) described three types of learning, cumulative learning, assimilative learning and accommodative learning.
1. *Cumulative learning*: this is learning something that is completely new and cannot be linked to anything else you already know or are able to do. In adults this does not occur very frequently and when it does, it at first feels awkward, like learning to swim, ski, or cycle, when you've done nothing like that ever before.

2. *Assimilative learning* or learning by addition: this happens very often. In learning to teach it is building your repertoire of pedagogies, building practical knowledge about your students, building a knowledge base including several theories about pupil learning, your subject, et cetera.

3. *Accommodative learning*: this type of learning is associated with, for example, overcoming misconceptions or conceptual change. This is learning that feels like 'eye-openers'. You suddenly become aware of assumptions you didn't know you had and you question them. For example, in teacher education, for some student teachers it feels like a small shock when they realize that they view schools basically as 'places where things are taught' instead of 'places where things are learnt'.

Mezirow (e.g. 1990; 2009) added a fourth type of learning: *transformative learning*. This type of learning refers to identity shifts. I will explain this below. First, it must be clear that in learning to teach, all types of learning occur and *need* to occur. But if one looks at the main pedagogies that are used in teacher education, they appear to be focused on the second and third type of learning. Assimilative learning is the most present and some accommodative learning can be found. This is not surprising, as most learning theorists note that these two typify normal everyday learning (e.g. Illeris, 2008). However, if one regards the development of a professional identity as part of becoming a teacher, one also needs to include the fourth type of learning – transformative learning – of which hardly any pedagogy is found in teacher education programmes. Thus, in this chapter, I will focus explicitly on this fourth type of learning: transformative learning.

Based on an extensive review of theories of adult learning, Illeris (2008) described transformative learning as follows:

> This learning implies what could be termed *personality changes*, … a break of orientation that typically occurs as the *result of a crisis-like situation* caused by challenges experienced as urgent and unavoidable, making it necessary to change oneself in order to get any further. Transformative learning is thus profound and extensive, it demands a lot of mental energy and when accomplished it can often be experienced physically, typically as a *feeling of relief or relaxation* (p. 14; italics added).

Mezirow introduced the concept of transformative learning in 1990. He and his followers found that this type of learning was universal. In 2008, Mezirow described several 'universal dimensions' of adult understanding and adult learning, some of them being of particular interest for teacher education. For example, adults:

– seek meaning for their experience;
– rely upon beliefs and understandings that produce interpretations and opinions which will feel as more true than any other opinions;
– engage in reflective discourse to assess the reasons and assumptions supporting a belief to be able to arrive at a tentative best judgment;
– imagine how things can be different;

     – learn to transform their frames of reference through critical reflection on assumptions, self-reflection on assumptions and dialogical reasoning when the beliefs and understandings they generate become problematic.

In particular the last dimension is of interest here, the fact that adults 'learn to transform their frames of reference through critical reflection on assumptions, self-reflection on assumptions and dialogical reasoning when the beliefs and under-standings they generate become problematic' (Mezirow, 2008). Although based on research on adult learning, this is not so different from the process of becoming an adult and from the identity shift that people go through during adolescence. In fact, many theorists say you need several identity shifts during life (e.g. Adams, Hayes & Hopson, 1976) and that such shifts basically result from crises.

TRANSFORMATIVE LEARNING AND THE ROLE OF CRISIS

Looking at the process of transformative learning, one sees that crisis plays an eminent role in this. This process seems to affect everyone, in most cultures, after major life events. Adams et al. studied for many years how people deal with life changes, and in 1976 they described several features of what they called the 'transition cycle' (see Figure 2). Transition is the way people respond to change over time (Kralik, Visentin & van Loon, 2006). People undergo transition when they need to adapt to new situations or circumstances in order to incorporate the change event into their lives. Starting a new profession or job is one such change event.
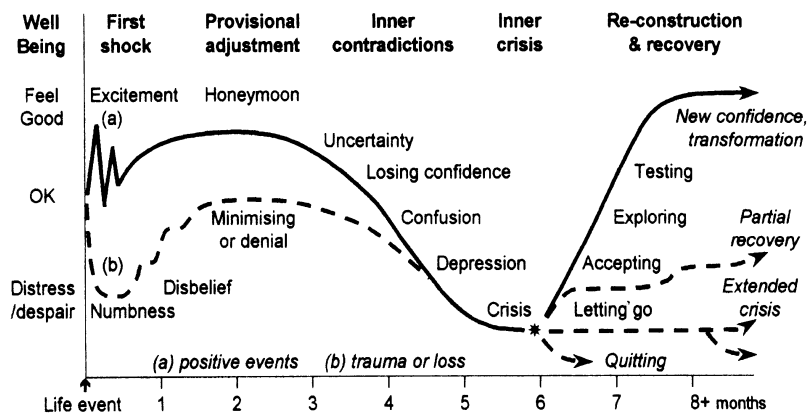
Figure 2. Phases and features of the Transition Cycle (Adams, Hayes & Hopson, 1976).

Figure 2 shows how a crisis is related to change or a life event. This picture shows the way people in general respond to changes. A career change or new job can

generally be seen as a positive event, so for the purpose of this chapter we have to look at the upper line starting on the left of Figure 2 and subsequently showing an excitement phase, a honeymoon phase, followed by a phase of inner contradictions in which people feel uncertain, lose confidence and can become confused and depressed. Then, a few months after the change, people can feel an inner crisis. From that point on, there are basically four potential pathways, of which the upper pathway leads to new confidence and transformation. But the 'dangers' are clear: partial recovery, extended crisis, or even quitting. Based on their review, Adams et al. (1976) concluded that such transition cycles occur 10–20 times in most people's lives. If understood and supported, these events can be turning points and opportunities. If not, they can lead to serious errors of judgement, depression, breakdown, broken relationships or careers.

These ideas about transition are quite similar to what we know about teachers' first year of teaching. Ellen Moir of the University of California Santa Cruz New Teacher Project has studied student teachers' attitudes towards teaching when they go through their first year of teaching and identified phases through which most new teachers progress. Figure 3 shows how student teachers in general move through the phases from anticipation, to survival, to disillusionment, to rejuvenation, reflection and then back to anticipation.

Figure 3. Phases of first year teachers' attitude towards teaching (Moir, 2002).

This is comparable to the upper pathway of the line shown in Figure 2. But we also know that many student teachers quit during their first year of teaching, in other words, take the other possible pathways. So the question is: what support do student teachers need in order to take the upper pathway? Before I go into this question, we first need to better understand what a crisis or disillusionment looks like. What happens in and after a crisis? I want to illustrate this by paying closer

attention to the Roeland's crisis. Roeland felt disrespected by students, spending a whole evening preparing a lesson, but the students not even paying attention. He even felt a bit betrayed by his students, who did not recognize how hard he had worked and that he did so for *them*. At such moments, he had thoughts such as: 'what am I doing it for?' This is a very common question for student teachers in such a phase. Together with some colleagues I examined how student teachers dealt with such situations (see Meijer, Meirink & de Graaf, in press) and many reported questions like this one, specifically when their crisis was related to interaction with pupils. In addition, feelings of quite extreme uncertainty and panic were mentioned in connection with such crises. Occasionally, aspects of the school as an organization contributed to their crises, such as uncertain job perspectives, or panic caused by a heavy workload. The crises that student teachers reported suggest a 'practice shock' (Veenman, 1984). In describing to us what they had experienced, student teachers used terms such as 'feeling completely incapable of teaching' and 'CHAOS in lessons', 'shocked by students', 'I definitely wanted to quit teaching. I felt completely useless as a teacher.'

Moir and her colleagues found that basically after six to eight weeks of non-stop work and stress, new teachers enter the disillusionment phase. The intensity and length of the phase varies among new teachers. The extensive time commitment, the realization that things are probably not going as smoothly as they want and low morale contribute to this period of disenchantment. New teachers begin questioning both their commitment and their competence. They express self-doubt, have lower self-esteem and many new teachers get sick during this phase. In addition, the accumulated stress of the first-year teachers, coupled with months of excessive time allotted to teaching, often bring complaints from family and friends. This is a very difficult and challenging phase for new entrants into the profession. In fact, getting through this phase may be the toughest challenge that new teachers face.

The Chinese ideogram for 'crisis' (see Figure 4) is called 'Wei-chi' and contains explicitly the roots 'danger' and 'opportunity'.

Figure 4. Wei-chi: Chinese ideogram for 'crisis'

Looking back at the transition cycle of Adams et al. (1976; see Figure 2), the *danger* in the student teacher's first year of teaching is clear: quitting, as we know many new teachers do (cf. Ingersoll, 2001). Also the *opportunity* is clear: new

confidence, transformation, and an even a higher sense of well-being than at the beginning of the cycle. So, what happens in the case of student teachers? How do they cope with their crises, how do teacher educators help them and is there anything else they might do to support student teachers in their transformation process or, in other words, in the development of their teacher identity?

Roeland was in crisis. Just before graduation, he participated in the study in which we asked most of our student teachers to look back on how they had experienced their teacher education year, how they perceived their learning during the learning and what contributed to the learning (Meijer et al., in press). In answering questions about what contributed to his learning, he answered:

> The talk in which my supervisor told me I'm not the only one. She described what she knew from literature and told me that almost all beginning teachers she had supervised had gone through such a period of huge distress. This was such a relief! At first I thought there was something wrong with me and that teaching was not the right choice for me, but then I realized this was part of a learning process of some kind. … after realizing this, we worked on some lesson plans together and I felt my motivation coming back!

And later:

> That talk [with my supervisor] turned out to be crucial. In anticipation of that talk I was so nervous – what would she be thinking? – but I had never expected how much it would help me … I used to think that I could quite well manage on my own … but since then, I ask for help or advice so much more easily. I now see how other people can help in improving as a teacher. And I now know what I'm doing it for, my teaching.

We found that conversations with supervisors and school coaches often were experienced as positive 'turning points' in student teachers' development. They had a sudden insight, or they regained their motivation for teaching. Also student reactions mattered, specifically moments in which teachers talked to individual students after a lesson and students who showed themselves to be genuinely interested. Such experiences made student teachers realize 'what I'm doing it for, for them!'

What is found here, is that student teachers basically develop a *commitment* (cf. Nias, 1989) after such a crisis. This is also related to the 'passion for teaching' (Day, 2005) that experienced teachers need to develop. For student teachers, this has several effects: they start to feel like teachers and even start to 'look' like teachers. On their holidays, they meet people who immediately presume that they are teachers. They have not only dealt with the question of 'how do I learn to teach?', but also, in particular, with the questions 'what does it mean (for me) to teach?' and 'who am I as a teacher?' (cf. Kelchtermans & Hamilton, 2004). 'Being a teacher' becomes part of their identity as a person. Theorists say that a crisis might be needed in order to make such a transition.

But what if student teachers do not experience such a crisis? As mentioned earlier, I am mostly worried when student teachers do not report any crisis or dilemma. These student teachers learn a teaching repertoire, they manage their basic tasks as teachers, but they often have problems dealing with tasks that ask for reflection and further growth. Illeris (2008) describes how people 'defend' their personal identity to hefty changes instigated by, for example, educational situations aimed at personal and professional development. He labels such defence as a mental barrier to identity development and, related to that, to becoming involved in a process of transformative learning. This mostly takes place when people experience they need to 'demolish' their existing identity and build up a new one. Identity defence is both natural and necessary, as Illeris states, and empathic counselling to be able to face the new reality and its demands is needed here, in order to facilitate the transformative learning taking place and to endure the 'crisis' needed to develop the new identity.

Interestingly, developmental psychologist Erik Erikson labelled an identity crisis a *developmental* crisis and stated that going through an identity crisis is a prerequisite for growth and *identity resolution* (Erikson, 1963). Based on his major works on identity development in adolescents, the processes Erikson described also seem to apply for the process of identity development that student teachers go through (see Anthis & LaVoie, 2006, for a review of studies on changes in adult identity). Erikson sees the following dangers when one does not go through such a crisis:

– *Foreclosure*: timely closure of genuine experimenting, causing all kinds of possibilities not to be explored. Conformation to expectations of other. The 'true' identity crisis will come, but at a later and much more difficult occasion.
– *Identity Confusion*: causing an extended experimentation phase in which no real choices are made and no lessons are learned. One is preoccupied with oneself and no genuine relationships with other people are developed.
– *Synthetic Identity*: convulsive conformation to a system without finding out whether the chosen identity is in accordance with own deeper beliefs. There is an intolerance for other opinions, mostly to protect oneself against doubts about the choices made (Erikson, 1963).

Summarizing, the *dangers* of a crisis for student teachers are foreclosure or partial recovery, identity confusion or extended crisis, development of a synthetic identity and quitting. The *opportunity* is identity resolution and transformation. But to get there, the crisis has to be, or become, a developmental crisis.

IMPLICATIONS FOR TEACHER EDUCATION

In this paragraph I will discuss some implications that these theories have for teacher education and research on learning to teach. First, what do you have to do as a teacher educator? Basically, you have to make sure that your student teachers, trying to keep their heads up, go through a genuine crisis. It is your task to make it a developmental crisis and to avoid the dangers as mentioned in the former paragraph.

There are two tasks. First, and the most important one, is the support of

transformative learning of student teachers in crisis. In their chapter in the *Handbook of research on teacher education*, Rodgers and Scott (2008) found some contemporary progressive teacher education programmes which advocate the support of transformative learning. Based on the experiences of these programmes they recommend:

– Creating time and space for reflection;
– Creating communities of trust;
– Making sense of experience through stories;
– Asking student teachers to confront and speak back to the external forces that shape and limit who and what a teacher is, such as colleagues, pupils and parents (Rodgers & Scott, 2008).

The second task of teacher educators is to make sure that all student teachers go through crisis, so sometimes a teacher educator even needs to provoke transformative learning. This implies that teacher educators (see Mezirow, 1990):

– should inspire *mental resistance* if necessary, because this is the way that personal competencies are developed that are so key to teaching, such as independence, responsibility and creativity;
– should use *conflict raising*, or dilemma raising;
– should use several methods to foster *critical self-reflection* of assumptions needed for transformative learning, such as the use of critical incidents, life histories, collaborative learning, etc., preferably in combination.

According to Mezirow, the aim of these interventions should be the support and encouragement of 'breakthrough' learning, before more goal-directed and constructive education can take place (cf. Mezirow, 2009).

This is learning beyond the comfort zone. It is confronting, painful and discomforting (cf. Choy, 2009). When I talk to peer teacher educators, they often indicate that 'safety' is a key element in their work with student teachers. When I build collaborative reflection groups of student teachers, one of the key issues is, again, safety. But learning beyond the comfort zone is in essence not safe and can be quite threatening. How does this relate? One of the ways to look at this issue is to ask the question *when* the actual transformative learning takes place. The transition cycle (see Figure 2) showed that learning takes place *after* the crisis. The case of Roeland showed that his crisis was at another moment than his learning. The actual transformative learning was on his bike, in the woods. So you need the kind of moments Rodgers and Scott (2008) meant when referring to 'creating time and space for reflection'.

This is one of the conditions that enable successful transitions which also include (see Adams et al., 1976; Illeris, 2008; Choy, 2009) (a) a supportive work environment: this means a culture of high respect and low control, good team morale, clear roles, life–work boundaries respected and (b) transition support: briefing, practical support, life–career planning, tolerance, time off before illness, confidential counselling, freedom/recognition for new ideas. It is not far-fetched to see the 'safe environment' in these two conditions. One needs an environment in which learning in all its facets (i.e. cumulative learning, assimilative learning, accommodative learning and transformative learning, cf. Illeris, 2009) can take place,

is supported and feels safe. This also includes teacher educators' acceptance of the defence mechanisms that some student teachers have to protect themselves from vast identity changes. Empathetic counselling processes are needed (see Illeris, 2008).

Some factors inhibiting transformative learning, however, include (see Adams et al. 1976; Choy, 2009) (a) a hostile work environment: a culture of low respect and high control, work overload, unrealistic demands and abuse of life–work boundary, such as excessive time demands affecting relationships, leisure and fitness and (b) poor transition management: no realistic support, no preparation for change, unrealistic time scales and no opportunity for fresh insights.

Schools and teacher education institutes do not automatically provide environments that support the transformative learning that is required for the development of a professional teacher identity. Specifically in the case of student teachers, schools and teacher education institutes need to work closely together in order to create an environment for student teachers in which they feel safe and supported in such a way that they can develop an identity that goes with themselves as well as with the teacher profession.

SOME FINAL COMMENTS

There needs to be more examination of the role of crisis in the formation and development of a teacher identity and much needs to be discussed. I will discuss three issues here.

The *first* pertains to the effects of a crisis for the student teachers in the long run: whether student teachers who experience a developmental crisis quit teaching less often than student teachers who did not experience such a crisis. Longitudinal data will shed light on this issue. Effects also refer to the question of whether developmental crises eventually lead to better teachers. We will need empirical research to examine this question, which also includes longitudinal indicators of teacher effectiveness, such as student learning. Both of these questions are complicated to answer. There are personal factors at stake (pertaining to the student teacher) as well as organizational factors (pertaining to the teacher education institute and the school organization). Specifically the latter will probably prove difficult to assess (see Van Veen et al., 2005).

A *second* issue is the question how the ideas in this chapter relate to the learning of *experienced* teachers. Most probably there are links, as experienced teachers are regularly confronted with changes in education. Geijsel and Meijers (2005) identified 'identity learning' even as the core of education innovations, specifically if these innovations have profound implications for the teachers' role. Also Palmer (1998) reports on many teachers who need to rediscover their commitment to or their passion for teaching (cf., Day, 2005), which might indicate that experienced teachers go through crises as well. It would be very interesting how these teachers might be supported in schools to turn such crises into developmental crises.

A *third* and final issue concerns the implications for teacher education and for

mentors coaching student teachers during student teaching in schools. Many teacher educators are familiar with the support of student teachers during a crisis. But how 'dangerous' is the *provocation* of crisis? We need very good teacher educators who can do that and who know that, in essence, they are not therapists, but teacher educators. This is a thin line and teacher educators will need support to perform this task well. This might even demand, for some teacher educators, for an identity change for them as well.

REFERENCES

Adams, J., Hayes, J., & Hopson, B. (1976). *Transition – Understanding and managing personal change.* London: Martin Robertson & Company.

Anthis, K. S. (2002), On the calamity theory of growth: The relationship between stressful life events and changes in identity over time. *Identity: An International Journal of Theory and Research, 3,* 229–240.

Anthis, K., & LaVoie, J. C. (2006). Readiness to change: A longitudinal study of changes in adult identity. *Journal of Research in Personality, 40*(2), 209–219.

Beijaard, D., Meijer, P. C., & Verloop, N. (2004). Reconsidering research on teachers' professional identity. *Teaching and Teacher Education, 20*, 107–128.

Choy, S. (2009). Transformational learning in the workplace. *Journal of Transformative Education, 7*(1), 65–84

Day, C. (2005). *A passion for teaching.* London: Routledge.

Erikson, E.H. (1963). *Childhood and society.* New York: Norton.

Flores, M. A., & Day, C. (2006). Contexts which shape and reshape new teachers' identities: A multi-perspective study. *Teaching and Teacher Education, 22*, 219–232.

Geijsel, F., & Meijers, F. (2005). Identity learning: The core process of educational change. *Educational Studies, 31*(4), 419–430.

Illeris, K. (2009). *Contemporary theories of learning.* New York: Routledge.

Illeris, K. (2008). *How we learn. Learning and non-learning in school and beyond.* London: Routledge.

Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal, 38*, 499–534.

Jephcote, M., & Salisbury, J. (2009). Further education teachers' accounts of their professional identities. *Teaching and Teacher Education, 25*(7), 966–972.

Kelchtermans, G., & Hamilton, M. L. (2004). The dialectics of passion and theory: Exploring the relationship between self-study and emotion. In J.J. Loughran, M.L. Hamilton, V. Kubler LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (pp. 785–810). Dordrecht, the Netherlands: Kluwer Academic Publishers.

Kralik, D., Visentin, K., & van Loon, A. (2006). Transition: A literature review. *Journal of Advanced Nursing, 55*(3), 320–329.

Meijer, P. C., Meirink, J. A., & de Graaf, B. (conditionally accepted). Key experiences in student teachers' development. *Teachers and Teaching: Theory and Practice.*

Mezirow, J. (1990). How critical reflection triggers transformative learning. In J. Mezirow et al. (Eds.), *Fostering critical reflection in adulthood: A guide to transformative and emancipatory learning.* San Francisco: Jossey–Bass.

Mezirow, J. (2009). An overview of transformative learning. In K. Illeris (Ed.), *Contemporary theories of learning.* New York: Routledge.

Moir, E. (2002). *The stages of a teacher's first year.* In *The BEST beginning teacher experience.* Dubuque, IOWA: Kendall/Hunt.

Palmer, P. (1998). *The courage to teach: Exploring the inner landscape of a teacher's life.* San Francisco: Jossey–Bass.

Rodgers, C. R., & Scott, K. H. (2008). The development of the personal self and professional identity in learning to teach. In M. Cochran-Smith, S. Feiman-Nemser, D. J. McIntyre, & K. E. Demers (Eds.), *Handbook of research on teacher education* (pp. 732–755). New York: Routledge.

Schepens, A., Aelterman, A., & Vlerick, P. (2009). Student teachers' professional identity formation: Between being born as a teacher and becoming one. *Educational Studies, 35*(4), 361–378.

Trent, J., & Gao, X. S. (2009). 'At least I'm the type of teacher I want to be': Second-career English language teachers' identity formation in Hong Kong secondary schools. *Asia-Pacific Journal of Teacher Education, 37*(3), 253–270.

Van Veen, K., Sleegers, P., & Van de Ven, P. H. (2005). One teacher's identity, emotions and commitment to change: A case study into the cognitive-affective processes of a secondary school teacher in the context of reforms. *Teaching and Teacher Education, 21*, 917–934.

Veenman, S. A. M. (1984). Perceived problems of beginning teachers. *Review of Educational Research*, 54, 143–178.

LEARNING AND TEACHING ON SPACESHIP EARTH: THE SEARCH FOR SUSTAINABLE VALUES IN EDUCATION

Michael Kompf

This paper offers some perspectives about the shifting place and status of values in education as globalisation affects the activities, participants and stakeholders in learning and teaching. The substance and inculcation of values is both explicit and implicit and framed through factors such as religion, nationalism, capitalism and technology. A constructivist lens helps understand how values are perceived and acted on in the personal and social contexts of learning and teaching. The ideas of Korzybski (1931), Kelly (1955), McLuhan (1962) Schutz (1964) among others illustrate the usefulness and durability of constructivist understandings in the contemporary context of values in education.

Spaceship Earth

The idea of Spaceship Earth has been used in a variety of contexts by Buckminster Fuller, Disney and a host of others. A spaceship is a closed and hopefully reliable, predictable system in which all parts and persons interact in ways that sustain survival. Successful anticipation and preparation are not only valued but essential. The mission of the spaceship USS Enterprise stated by Captain Kirk in the opening credits of the TV series Star Trek*, was "to boldly go where no man has gone before" The duration and budget of the show dictated how issues and outcomes unfolded. (Un)fortunately, life is not as neat and tidy, nor is it scripted in episodes and presented in instalments. Daily, each of us goes where we have never gone before, prepared only with the wits and understandings that helped us reach the "now" moment. Preparedness seems to have an inverse relationship with technological and social progress and has become unhinged from past experience and the quality of anticipations history once provided.*

The inside of a spaceship imaginary and otherwise shows how structures and functions provide for inhabitants of a closed system in ways that sustain life in stable, secure and predictable ways. Spaceship Earth in its largest sense is a closed system as well. Environmental components including inner structural aspects as well as surface conditions determine the quality of life with whatever stability,

security and predictability that can be sustained. The inhabitants of the meta-phorical spaceship and the non-metaphorical planet earth are far less predictable in terms of the activities in which they become involved in their closed system. Geographic maps provide depictions that assist exploration. Were Spaceship Earth mapped by cultural understandings rather than geographic characteristics it would look very different. A conceptual and ideological map would create a contrasting picture of interests, levels of development and values with the theory and practice of learning and teaching as a scholarly mythos in which academics seek to boldly go where no one has gone before.

Constructivism and Values

One of Kelly's (1955) main principles is that what individuals perceive to be real is real for them. Persons have no alternative except to act according to their realities whether those perceptions match the realities of others or not. Kelly's methods of inquiry (e.g., role construct repertory test and the self-characterisation sketch) established ways that allowed individuals to represent and better understand the realities that give rise to their own thoughts and actions. Understanding the cognitive components and structures of constructs and construct systems allows psychologists access to individual processes and an opportunity to co-construct alternatives with greater likelihoods of leading to more accurate, successful and useful anticipations and predictions about the events of everyday life. If values, sustainable and otherwise, were treated as core constructs, Kelly's concept of construct formation would assist in understanding the basic way in which the development of values might occur. In five steps or stages values undergo construction by:

1. Formation through context, e.g., gender, race, socio-economic status, nationality, geographic location, (dis)ability;
2. Normation -seeking for and finding fit with community, e.g., religious or spiritual affiliation, quality of family and community engagement;
3. Rationalisation through literacy, comprehension, use, validation, inclusion, e.g., employment, education, social or organisational standing;
4. Refutation through invalidation, e.g., contrary constructions that compromise predictive usefulness and ;
5. Re-formation through revision, e.g., assessment of alternative constructions with greatest opportunity for more successful anticipations (similar dynamics as Formation because the cycle is initiated again).

**Formation and Re-formation
(Start and Restart here)**

Refutation   **Constructs about Values**   **Normation**

Rationalisation
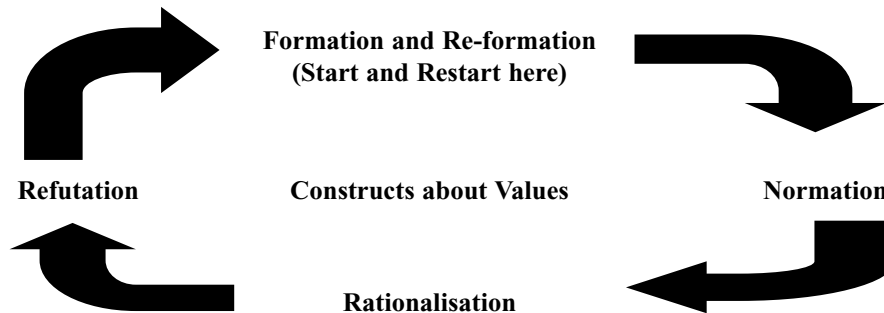
Figure 1 Construing Values.

Core and Peripheral Constructs

Core constructs are a complex melange of influences that create personality. Examples of these forces include, but are not limited to, gender, race, socio-economic status, nationality, geographic location, religious or spiritual affiliation, quality of family and community engagement, (dis)ability, intelligence and education. Such values are prioritised in relation to influences of culture and are reflected in personal and social paradigms. Such perspective, if part of a social and educational agenda, can be internalised as core constructions of values. Such constructs may or may not be permeable. The extent of construct or value permeability determines the potential for revision and the effects any revisions will have on other constructions. Surface constructs or expressed values are signposts to deeper matters that underlie a values paradigm. Peripheral constructs drawn forth from core constructs represent those ideas-in-use that flex and form in response to situations of everyday life. For example, the human capacity for technology is indicated by the evolution of tool use. From carvings and cave painting, through weaving looms and printing presses and now computers, cognitive and dexterity requirements of mastering technology have been either driven by communication or survival needs or by manufactured socio-commercial need. Thus texting, word-processing and so on are peripheral applications or constructions of the core constructs related to technology as derived from the more basic construct of tool use. The capacity for technology is a further mythic signpost of storying as its use marks the human quest to not only "boldly go where no one has gone before" but to leave a trail marked with the socio-cognitive breadcrumbs that link the values, culture and accomplishments we call progress.

Personal Constructs and Social Constructs

Evolution of labels, language and attitude between, among and within members of diverse societies moves from tolerance, through acceptance to embracing of other cultures. In spite of social, legal and religious principles that enshrine human rights, the actuality of regard in these matters is deeply rooted in core and peripheral personal and social constructions.

Constructs pertaining to cultural diversity may be made more or less permeable through proximity, interaction and perceived threat to the ranges of convenience and circumstances within the grasp of those constructions. Personal values formation may be resistant to an inclusive social agenda through intolerant elements in society. The meeting of personal and social constructs of values is culturally embedded and is a dimension with many aspects. A definition of how culture must be understood broadly is provided by the Danish Ministry of Foreign Affairs in *Culture and development* (2002):

> Culture may be defined as the total complex of spiritual, material, intellectual and emotional features that characterise a society or social group. Culture is mental structures, the general patterns of understanding prevalent in a given social group: conceptions of the world, religion, gender role patterns and the management of natural resources. But culture also comprises more specific forms of expression through works of artistic or cultural value. Operationally, this twofold definition means that work with the cultural dimension involves (i) culture as the sum of social practices in the form of, for example, religion, language, education and social and family practices, and (ii) culture as artistic expression in the form of, for example, literature, dance, music and films. (p. 5)

Cultural values extend into other constellations of constructs having to do more with matters that differentiate and divide rather than unify leaving questions about whether we curse the river that divides us or celebrate the water that connects us. Common issues that supersede elements of race and religion such as environment, shared disaster, injustice and the like, while often tragic, move attention down into something akin to Maslow's basic levels. As lower level needs take precedence, for example when disaster strikes, the immediacy of survival dominates all else and is still subject to internal and external characterisations from a values-based cultural depiction of needs.

Maps and Terrains of Values

In 1931, Alfred Korzybski asserted that "The map is not the territory" as a way of expressing that an abstraction derived from an event, or the reaction to the event, is not the experience itself. A representation of something, for example a map of Finland is not Finland. The map is a metaphorical construction of the concept

of Finland that fails to convey all aspects of the landscape. Unless differences between something and its representation are appreciated, understanding and the sets of cognitive abilities used for critical thought are compromised. Thus, the reflection of an event is not the event and any consideration of *sustainable values* must be carried on from the perspective of manifestation, or how group of values are exemplified, because prescription alone creates only tenuous possibilities. The set of values posted in a school foyer, while subject and substance of prolonged discussion and debate for language and intent, are maps for unknowable terrains. When, for example, the value of honesty is advocated, no continuum is provided that distinguishes between returning a lost wallet with contents intact and responding to a friend's query about appearance with forthright and unabashed critique. Honesty treated as a construction would involve bipolarity, e.g., honest – dishonest. The honest – dishonest construct while useful for judgement and decision-taking is social and therefore subject to contextualised implementation. Constructions of honesty as a value are derived from social constructions which may in turn be derived from sources such as religion or legal statutes that create circumstances in which personal commitment to a particular value measures worth and character.

Culture defines and enforces values and determines sets of behaviour that may also feed stereotypes and prejudice. The basic orientation of a value set whether from an economic, religious, or cultural perspective predisposes those invested in that value set to act in certain ways consistent with those values and attached beliefs and accepted practices. Values are also paradigmatic and rely on and reflect rituals and routines, stories, myths, symbols, organisational and power structures as well as systems of control. Many social values draw on religion for guiding principles. For example, the seven deadly sins (Lust, Gluttony, Greed, Sloth, Wrath, Envy and Pride) and their counterparts of seven heavenly virtues (Chastity, Temperance, Charity, Diligence, Patience, Kindness and Humility) from the Judeo-Christian perspective have been benchmarks for values and associated behaviours for centuries.

Values thought to be more appropriate and necessary as schools and schooling become more integrated and multicultural have a broader scope, are formulaic and communicated through specific statements and policies linked to character education. Many of these values seem most ambitious and vague especially when viewed in an operational way such as the list produced by a small school district in Ontario through consultation with its multicultural community: Courage, Empathy, Fairness, Honesty, Initiative, Integrity, Optimism, Perseverance, Respect and Responsibility. Measurement of the effectiveness of posting and promoting these values has not been successful. Enacting them may be a greater issue than conveyed by verbal precision as values-in-action are often most notable in their breach or absence.

Relevance and Truth in Values

Alfred Schutz (1964) brought a phenomenological focus to political issues including citizenship and racial equality. He addressed the sociology of knowledge in the context of its social distribution by constructing three ideal types: the expert, the man on the street, and the well-informed citizen responsible for determining the competency of experts. Schutz described zones of interests, called relevances, embracing those which are reachable to those which are absolutely irrelevant. Relevance configurations constantly change and may have internal differences within a theme. Further, some relevances are chosen and some are imposed. Veritism, or the truthfulness of claims, as connected to the honest – dishonest value construct depends on what, how, when, why and who questions as might be posed in the application of critical thinking principles. Veritistic interrogations can lead to larger questions whose scope exhaust or go beyond the possibilities of meaningful inquiry especially into the topic of values.

Sustainable values means a set of principles that we sustain and that also sustain us. The term seems to imply measure of constancy and certainty that is largely unavailable today given shifts and tremors in financial, political and social spheres that influence how we engage with daily life and long term planning. Sustainable values represent stability, security and predictability and are representations of personal, social and spiritual comfort food. The search for stability, security and predictability is what we do in order to achieve balance and harmony en route to discoveries of practical or higher purpose. The very acts of searching for practical or higher purpose operate to threaten the stability, security and predictability from which we have acted in the first place. Personal and social capacity for progress and the change it brings was well explained by Thomas Kuhn (1970) in his treatment of paradigms and the actions and consequences of shift. Impetus for change in beliefs and practices most often comes from outside of a discipline or social grouping or from circumstances that draw attention to values gaps as noted by violations.

In the academy this is most evident in trans-disciplinary studies. In society it is in great evidence in the growing multiculturalism that either blesses or threatens previously homogeneous settings. In nearly all matters information and communications technology (ICT) has brought about unprecedented and unforeseen change and shift. Marshal McLuhan stated that "The new electronic interdependence recreates the world in the image of a global village" (1962, p. 31). The homogeneity once promised by village life has the same dark side embedded in all movements with the potential for paradigmatic paralysis. The paralysis that can occur as villages become globalised may also be caused by the inability to choose that accompanies over-choice which occurs when the array of alternatives is too vast for those in a local village paradigm.

Testing and Internalising Values

When values, or any learning for that matter, are used in everyday life and become part of a the construct repertoire of a group or individual, authentic use means both processing through the cycle proposed in Figure 1. and a process of fit management through the dominant social constructions in place in that location and time. As learning is best achieved through the principles of critical thought and consideration, such a process may also be applied to meaningful values acquisition and use.

Critical thought dispels unwarranted assumptions about the focus or topic under consideration and requires unfettered access to information and explanation of processes. Education must have at its core the qualities of excellence, relevance and worth. While these are strong words and carry intrinsic weight, each may be viewed differently depending on who is providing criteria and determination. An excellent education may be defined in business and industry as producing an individual well trained in technical matters and applications based on skills acquisition and specific competencies. The value of this type of excellence may be contested by those who would espouse the view of John Dewey (1938), that an excellent education sets free the mind, and is an end unto itself rather than a means to an end. Similarly, the relevance of what is learned and how it is learned, if determined without careful and constant attention must be questioned and processed through an articulate and deliberate set of critical thinking principles.

Identifying, grasping and making sense of experience means activating the perceptual and conceptual fields in ways that increase viability in terms of a needs hierarchy such as that proposed by Maslow in which survival needs (e.g., food, clothing and shelter) are and must be first addressed. Once the basic levels of need are satisfied then pursuing needs for affiliation and actualisation become possible. The sets of needs are loosely coupled to developmental issues such as were proposed by Erikson and others in which crises or opportunities must be faced and resolved in a favourable ratio in ways that allows an individual to move forward psychologically in concert with the developmental tasks faced in the course of maturation and the development of critical literacy as applied to the acquisition and implementation of values.

Where and How We Look

Culture is interwoven with values and linked to language and geography. Culture and values are also subject to stereotyping that reinforces differentiation rather than commonalities which leads to "us" and "them" thinking raising questions about what inclusion means, what it addresses and what it looks like. Perhaps most important are the ways in which we comprehend and study culture and values.

A story is told of a man on a stroll through the countryside passing a fence on which many targets were painted. All of them had bullet holes exactly in the center. He approached a farmer and asked about the marksman. The farmer replied that he

had recently purchased a rifle and knew nothing about shooting. He had test-fired the rifle a number of times at the fence and had then painted targets around the bullet holes. When conceptual frames and labels are divorced from events themselves, associated research consists of little more than such an activity. Platitudes with latitude that appear in mission statements and displayed in school entry ways are usually the output of well-intentioned stakeholders wishing to promote and enforce codes of ethic and conduct representing little more than targets painted around bullet holes.

The influences that shape and guide the world's diverse societies face tensions that are local and global. ICT has created a social epistemology driven by immediate sharing of perspectives, opinions and images. The formation and testing of knowledge and values occurs in real-world, real-time contexts largely unmediated by the academy or the various venues of education. The ivory towers that once characterised the university have become towers of Babel in which commercialism and the development of revenue streams have replaced the crucible of learning. Learning is now no more confined to institutions than gods are confined to their temples.

The redefinition of the academy is obvious through the malleable and shifting terms and frames of reference and values. To those in established educational systems with institutions of long standing, difficult professional and personal transformations have been experienced as core values of the academy have been breached. Arguments that as times change so must all things change is specious because it ignores the value in conserving fundamental aspects of human need for support and challenge in the pursuit of knowledge that is authentic, valuable, meaningful and globally inclusive. We would do well to remember the words of Neil Postman (1982) each time we approach learning situations: "Children are the living messages we send to a time we will not see".

REFERENCES

Kelly, G. A. (1955) *The psychology of personal constructs* (Vols. 1 & 2) Chicago: Norton

Korzybski , A. (1931/33). "A Non-Aristotelian System and its Necessity for Rigour in Mathematics and Physics". Paper presented to the American Mathematical Society, The New Orleans, Louisiana, meeting of the American Association for the Advancement of Science, December 28, 1931. Reprinted in A. Korzybski, *Science and Sanity* (pp. 747–761). Lakeville, Conn.: Institute of General Semantics.

McLuhan, M.(1962). *The Gutenberg Galaxy.* London: Routledge & Kegan Paul

Ministry of Foreign Affairs, Denmark (2002). *Culture and development Strategy and guidelines, Information Office.* www.um.dk

Postman, N. (1982). *The disappearance of childhood: redefining the value of school.* New York: Vintage Books

Schutz, A. (1964). The well-informed citizen. In *Collected papers. Vol. II. Studies in social theory* (120–134). The Hague: Martinus Nijhoff.

CHAPTER 5

IDENTITY THRESHOLDS: RESEARCHING THE SOCIO-POLITICAL IMPACT OF LEARNING IN IMMERSIVE VIRTUAL WORLDS

Maggi Savin-Baden

INTRODUCTION

Much of the recent research into learning in immersive virtual worlds (IVWs) centres around games and gaming and is largely underpinned by cognitive learning theories that focus on linearity, problem-solving and the importance of attaining the 'right answer' or game plan. In this paper I will suggest that learning and researching in immersive worlds seems to result in a sense of multiple identities and disembodiment, or even different forms of embodiment. Further, the *sense* of anonymity and the assumption that this was what was understood through one's words rather than one's bodily presence, is becoming increasingly unmasked through immersive virtual worlds such as Second Life.

Under taking research in such in-between spaces has a certain edge about it. This is perhaps promoted by the constant juxtaposition of real life (RL) and Second Life (SL), and the extent to which one feels more 'real' in SL than in online discussion forums. Further, in research and in Second Life it would seem that language and speech are not representations that mirror experience, but instead create it, thus the meanings ascribed and inscribed in and through avatars are always on the move. It might be that liminality could be seen as a trope for understanding avatar identity/pedagogy, or possibly that provisionality and representation might be seen as sub-categories of liminality itself. Yet it is probably more likely that provisionality and representation are issues that inform our understandings of liminality. For example, struggles with understandings of what might constitute provisionality and how representation affects avatar identity and avatar pedagogy can inform and guide the different forms and formulations of liminality that occur in immersive virtual worlds.

This paper will present a study that used narrative inquiry to examine staff and students' experiences of learning in Second Life. The findings that will be presented will explore issues connected with: pedagogy and play, dialogic translation and runaway pluralism. It will suggest that issues of provisionality and representation and their relationship with liminality introduce questions about whether liminality differs in Real Life compared with 3D virtual worlds and whether different forms

of liminality exist and /or can be delineated, *and thus bring with it some kind of constitution of a threshold identity.*

BACKGROUND

Recent research to date has been undertaken into students' experiences of virtual learning environments, discussion forums and perspectives about what and how online learning has been implemented. For example, there have been a series of studies funded by the JISC in the UK that have explored students' perspectives of e-learning, namely Sharpe et al., (2005); Creanor et al., (2006) and Conole et al., (2006). These studies, although using relatively small data sets, would seem to indicate students' experiences of e-learning are more complex and wide-ranging than many university tutors realise. Further, virtual world learning seems to offer new perspectives relating to the study of the socio-political impact of learning in higher education. This is because spaces such as second life are universal, not bounded by time or geography, and in particular adopt different learning values from other learning spaces (Savin-Baden, 2007; Olsen et al., 2004; Malaby, 2006). Furthermore, research by Ferreday, et al., (2006) would seem to suggest that identity and identity construction in virtual worlds occurs through dialogic learning rather than gaming.

METHODOLOGY AND METHODS

Narrative inquiry was used since stories are collected as a means of understanding experience as lived and told, through both research and literature (Clandinin & Connelly, 1994). However, narrative inquiry is seen in a variety of ways and tends to transcend a number of different approaches and traditions such as biography, autobiography, life story and more recently life course research.

Data Collection

An initial review was undertaken of existing data available, via databases and ESDS Qualidata. Data were collected through semi structured interviews face to face, by telephone and in- world with 10 staff and 10 students, and analysed interpretively to examine the subtext of data.

Ethics

Ethical approval was sought from the relevant University ethics committees. Data collected were confidential. Safeguards to confidentiality included the coding of data and the code was kept separate from the raw data. All names used throughout

were fictitious to preserve the identity of participants. However, it should be acknowledged that the individuals concerned might recognize some excerpts within the text used to illuminate the interpretation of data.

Trustworthiness, Honesties and Informed Consent

In the context of a study such as this, a shift was needed away from validity or trustworthiness, and the assumption that it is possible to find shared truths and clear themes and categories. Instead 'honesties' was adopted – a category that allowed for the acknowledgement that trust and truths are fragile and encourages engagement with the messiness and complexity of data interpretation in ways that reflect the lives of participants. Honesty allowed for recognition of not only the cyclical nature of 'truths' but also that informed consent is not unproblematic. Participants signed informed consent forms and transcriptions were returned to them for validation.

FINDINGS

Three themes emerged across staff and student data: pedagogy and play; dialogic translation and runaway pluralism.

Pedagogy and Play

The strong link between pedagogy and play that appeared to emerge in immersive world spaces seemed to enable an exploration of the ways in which past, current and future identities are present and embodied and multiply interacting with each other in these spaces. Issues were raised by staff about learning, play and fun and how we also play in and through our identities in virtual spaces. Although staff spoke of a strong cross over between real world and virtual world identities, there was also a sense of play being a serious component of learning. For example Iain argued:

> If you're role-playing in Second Life, your real life identity can look on at that role-play. You're participating but you are also at a distance, so the two identities that are inhabiting that role-play situation are explicit. There's you as the student learning, and there's you as the appraisee being criticised for something or other, and you can hold those two together. If you're, you can be them, be both of those at the same time and one can look at the other. If you are playing a role for real as it were, across a table, you have got to throw yourself into that role.

For Iain the presence of 'an other' in the form of an avatar seemed to make identity

collision less problematic. The ability to hold two identities in play simultaneously seemed to offer a different sense of role play in SL than was possible in real life. However, Ken was less concerned with a sense of the seriousness of play and more focussed on the value immersive spaces offered in the use of fun for learning:

> The idea that Second Life is a game for me is a positive; I think there are lots of educationalists who really don't like the idea of it being called a game because that in some way they think diminishes the educational potential of it. But, the teaching I do, is all based around games, that's all I do, that's what I teach, that's how I teach, you learn by playing. You learn by doing something and I see no harm in there being an enjoyable, playful aspect to something and I think it's something that educationalists, I mean there are plenty of educationalists who have completely got their heads around this and totally understand how children learn and babies learn and it's not just about hard-nosed education as such, you can teach people in a way that is much more playful, that is much more open and to an extent you learn without necessarily realising you're learning something.

His argument was that education needed to be more playful, particularly in the face of an increasingly performative higher education culture. Yet he sensed criticism and derision from colleagues about making learning fun, despite the seriousness of learning through play he believed in. However, Ken's stance mirrored earlier work, such as that of Rieber et al. (1998) who have argued for the notion of 'serious play'. Serious play is characterised as an intense learning experience, involves considerable energy and commitment and is believed to be important for the development of high order thinking, commitment and engagement. However one of the issues that emerged across the data was the importance of not just serious play and playfulness but also immersion.

The notion of play seemed to be at odds between staff and students. Students saw play as part of or integral to learning whereas their perception was that staff did not always see it as such. Chris and Meg both saw SL as space for play and experimentation which they felt was unexpected by staff:

> I was instantly engaged. I like debating and this fitted the bill. I also don't mind a bit of humour and a few jokes and that is inevitably involved in SL. . . There is a real dimension there to do all sorts of creative things you might not have thought of. . . For some a few the whole thing is off putting, not really serious, you know odd boy, that sort of thing. When I speak to friends who are teachers you have to overcome their prejudice that it's all just a joke (Chris).

> I think the course tutors, they are supportive but they can be quite directive on the course at points and I think their understanding of what education in an online space was quite different from mine. And also I was being quite

experimental and in a way I think they hadn't expected and I think they were quite thrown by that (Meg).

Perhaps student views were influenced by staff such as Marc and Lizzy who appeared to see their role as 'looking after' students. Some staff tended to control and manage learning and interaction in immersive worlds in ways that were at first glance a means of supporting students. This is exemplified through the way staff managed entry into the IVW, the way spaces and objects were created and managed and the way learning was organised. For example Marc 'looked after' students and their expectations and anxiety by creating avatars for them:

What we've been able to do in our inductions is to give every student an individual island so there's no other avatars around to cause anxiety, it's just their avatar. They don't have to sign up and choose a name and get into that whole kind of identity thing as well which again can cause quite a lot of anxiety early on, so they've just got a default avatar with a default name and what we've been able to do is just get them to think about the virtual world just as a creation tool initially.

Lizzy likened a SL tutorial to taking 'kids on a school trip', arguing that the new learning space meant a different kind of staff responsibility which in this case meant 'holding students' hands'. Yet there were also staff such as Liam who argued against the way staff put limits not only on learning but also by the imposition of real world values on immersive spaces:

I think we limit our thinking when we put a building on the ground. We don't need it. People building chairs for people to sit on during virtual lectures, is almost, for me an insanity. It's not as if the avatar gets tired. What's the purpose of having a virtual chair? So I think people need to broaden their thinking about what is possible, think the impossible and implement it. Rather than being restricted by what you see around you on a daily basis. There's not enough creativity.

There was a sense that teaching boundaries and practices were in one sense on the move and, on another, boundaries did need to be controlled. Perhaps the value confusion and conflict spoken of by staff reflected their different pedagogical stances: that is the way in which staff see themselves as teachers in particular educational environments. Pedagogical stances change in relation to other issues in people's lives, such as opting for a 'safer' way of teaching when struggles elsewhere demand energy or resolution, or desiring greater challenge and change in teaching when other aspects of life are mundane (Savin-Baden, 2000). However, it might be that the differences between staff and students' conceptions of pedagogy and play related to misunderstandings or explanations that were lost in translation.

Dialogic Translation

In SL dialogue is taking place in new spheres and diverse arena: at the boundaries of knowledge, at the borders of knowledge status and values and in new boundary spaces. Yet what SL did seem to offer was a dialogic space not used, recognised or adopted in RL spaces. Through dialogue staff and students were able to understand new and different languages and conceptions through SL discussion. This also seemed to overlap into RL areas so that discussions of what was required and developing a shared understanding enabled translation of the information into something that was meaningful and useful to them. Perhaps this was because SL was seen as a more informal learning space than discussion forum, and therefore students felt more able to ask questions about assignments and tutor expectations of standard of work and their participation in seminars. However, it also allowed opportunities for students to question what counted as learning and what learning meant for them. For example, Kay's learning and dialogue was something that was continually changing and on the move:

> I find that throughout this course and other things that I do that people talk about learning in lots of different ways. So it means the same thing every time they're using it and actually when you try and pin it down it disappears, what we're talking about. We're not quite talking about the same thing. And the learning for me that's coming from Second Life, it doesn't quite answer your question I don't think, but it's giving me almost, not quite a mirror but something, a trigger to look at other things, why am I reacting in this way, to what I'm seeing? Some of the things I've been saying to you. And it's forcing me to look anew at things, looking in a different way at things and I think that's quite powerful.

Such a sense of liminality prompted her to question her own pedagogical stance and explore issues of agency and identity in both RL and SL. Dialogic translation across and between worlds illustrates the difficulty of 'heteroglossia' (Bakhtin, 1981); the coexistence of distinct varieties within a single linguistic code whereby there is interplay of meanings and understandings, since the nature of heteroglossia arises from its social use by individuals and by communities. In research and in Second Life it would seem that language and speech are not representations that mirror experience, but instead create it, thus the meanings ascribed and inscribed in and through avatars are always on the move. Yet thinking of the impact of learning in such spaces and the shift in dialogue occurring also raised issues for students in terms of the imposition of pedagogic frameworks and models by staff on students. For example Meg argued:

> I don't know whether it will or whether it won't – *(virtual worlds will enhance learning in the future)* – I think it's here to stay but I think the problem is that it can go the same way as virtual learning environments and be very contained and linear and I know there are projects that are already doing that,

they're moving Gilly Salmon's five steps to good e-learning or whatever she calls it, um into Second Life and I'm not sure that's what it's about so I'm kind of quite unhappy with some of that um I do think it's quite experimental and I do think that people are being prepared to take risks and I think it's starting to interrupt knowledge and what learning means a bit more in higher education and I'm glad about that because I don't think there's enough of that going on. We're too obedient –

Whereas for Ken, a student at Stanage[i] University, SL opened up possibilities for creativity and freedom for students:

Ken: If you let your restraints go and see the funny side of it then it becomes imaginative fun and very creative. I once answered a questionnaire Dave had and it asked how you would feel if your avatar died. I said it would be like losing a sort of artistic creation like a good painting. So I think it can help you to be creative. The format allows you to try out new problem solving skills. I also think it could be good for those who are shy of public debate and discussion. They can just watch and join in a disguised way.

For Ken the lack of restraint allowed for experimentation in new learning spaces and the opportunity to explore and play with learner identity. Further, the notion of avatar as art indicated a sense of it being both a creative expression and an extension of one's self. Thus dialogic translation also involved extending and translating your self and your way of learning in/to a new space. However, there were other emerging dialogic practices, such as changes in language use and new emerging linguistic practices. Both staff and students tended to speak of their avatar as both 'I' and 'her', so that pronoun use became almost interchangeable. Further new phrases and language became apparent. This included the practice of adapting language for IVWs, such as *machinima*, originally used to describe the use of real-time three-dimensional graphics rendering engines to generate computer animation, but which has been adapted to describe the process of creating films in Second Life so that computer-generated imagery is rendered using real-time, interactive 3-D engines instead of professional 3D animation software. There has also been the creations of new words and phrases, such as *Rez* – means to create or make an object appear, whereas *'Rezzing* an object' can be done by dragging it from an inventory or by creating a new one via the edit window. The term "rezzing" can also be used for waiting for a texture or object to load, such as "Everything is still rezzing."

Linguistic and dialogic shifts were coupled with a sense of pluralism and cha-otic-ness and a sense of things being out of control. Such chronic liminality led to staff and students speaking as if they were in a runaway world.

Runaway Pluralism

The kinds of pluralism seen in SL related not just to the idea of power flowing from multiple sources, but that power was often intersecting, divided and confused by shifting and changing identities, roles and understandings of learning. This is largely because in SL power and resources changed and moved and were not subject to the political whims and constraints of SL in the same kinds of ways. Further, the lack of entrapment of identities in essentialist ways has also resulted in an interruption of RL identities, thus to some extent prompting a move away from the tendency to cleave towards particularity resulting in vulnerability to discrimination as both concept and practice.

However, at the same time there were unusual issues of actual power in terms of the impact of IVWs on ascribing in world behaviours, but this affected both staff and students. The way in which digital spaces are created for staff, by commercial organisations that are politicised and contained by universities, and used by students enables, but perhaps more often occludes, ways of seeing where information is located. Furthermore, there has been relatively little consideration of agency in 3D worlds and author/avatar as the primary informing relation/opposition. Yet agency in-world is devolved in very novel ways, such as particular activities or functions that can be scripted to make avatars respond in particular ways, which challenge us to extend the simple author/avatar relation to a broader consideration of agency as it is reconstituted by the multiple relations between author/avatar/world. For example, staff spoke of the way in which IVWs themselves ascribed and inscribed particular value systems, for example, Lizzy explained:

> I find one of the issues with it is there is a big difference between the kind of the philosophical idea you get in Second Life about you can be anything and do anything, and the way the environment actually scripts your behaviours, so you can only sit in a chair, I couldn't sit in a chair like this. I have to sit in a chair like this, which isn't my style, and I couldn't do something like nod.

Ascribed performance, visuality and behaviours in SL includes bodily shape, movement, clothes, appearance and lack of or prescribed gestures. The bodily markers that are used to present ourselves in life, clothes, ethnicity, gender and speech may be re-presented (differently) in SL but they also indicate choices about how we wish to be seen or the ways in which we might like to feel differently. Furthermore, authors such as Seymour (2001) have suggested that although the physical body is invisible, meanings, mannerisms, behaviours and unstated assumptions are clearly visible in online communication. Staff remarked on the ways in which IVWs closed off particular ways of creating and operating, for example Fran raised concerns about the values imposed through different virtual worlds:

> That's one of the advantages of Second Life, compared to *There*. *There* is very restrictive and if you want to change even your t-shirt colour you have

to pay. So we all end up, the guys all end up looking the same and the girls look the same and Second Life is advantaged, there's a library of stuff, and I could give you a wardrobe for free. We're a lot more in control of the situation for allowing you to change your appearance or at least guiding you on how to change your appearance.

Thus there was a sense that different IVWs imposed and created different value systems. Yet there was also a sense that: 'Not only do we play, but we are often played with − by others, by systems of which we are elements and by the sheer unpredictability, uncertainty and complexity of life' (Kane, 2005, p. 50), in this case the virtual world itself. Although at one level SL ascribed behaviours and *There* imposed appearance restriction, some staff valued the freedom and creativity of SL spaces, whilst others were sometimes wrong footed by the lack of control they had over students and their learning in IVWs. Thus the way in which digital spaces are created for staff, by commercial organisations that are politicised and contained by universities, and used by students enabled, but perhaps more often occludes, ways of seeing where information is located. One of the students, Chris, reflected:

I would like to see a flourishing of all sorts of educational groups using the format. I attend a number of evening classes all now threatened by government funding problems so SL could offer an alternative. I would like to see on line learning expand into this dimension as Stanage seem to be trying to explore. I would like to see this format used in Schools in dozens of different areas.

The sense of runaway pluralism therefore related to identities being on the move and almost out of control in terms of space/place/agency and in terms of both colliding and interrupting. There was also a sense of confusion occurring about issues of positioning and representation. Gee's work on video gaming offers some sense not only of the multiplicity of identities involved in online learning, but also the possibilities for relationships between some of them. One of the difficulties related to games-based learning would seem to be that of identity. Gee (2004, pp. 112–113) developed a theory of identity, based on experience of videogaming. It is a tripartite identity comprising:

1. The Real identity: who we are in the physical world.
2. The Virtual identity: who we are in the virtual space. Thus, Gee argues, our virtual self should be able to "inherit" some of our real attributes.
3. The Projected Identity: The projected identity refers to identity that is developed through engaging with the character, through the interaction of the first two identities.

However, Gee's conception of the virtual self here is located in gaming and the character within the games, and his notion of identity here seems to equate with 'role' rather than identity per se. Further, he has argued that identities are projected identities, but this introduces interesting psychoanalytic difficulties. Projections

are usually unwanted feelings that we invariably choose not to own. We therefore believe, that someone else is thinking/feeling them instead, such as anger or judgement (see e.g. Jung, 1977). Avatars in Second Life seem, in general, to capture wanted elements, or the chosen components of our identities that we wish to present to/in the world. Thus in immersive worlds it would seem that the identities presented are more likely to be the functional or ideal sides rather than the projected 'unwanted' sides. The realisation that one is playing with one's identities prompts both questions and realisations that our identities are troublesome and uncertain.

DISCUSSION

Avatar/author seems to be the focus of agency exploration in IVWs; in that it seems to inform ways relationship/oppositions are seen and this seems to be creating a sense of chronic liminality, such that identities might be seen as being spatial. Through reconstituting identities as spatial it may be possible to map the ways in which students engage in diverse spatial zones and this might mean that as academics we are able to develop means of reconstituting our practice, so that it reflects the complex spatialities in which we all work and learn. Sen (2006) has suggested that solitarist theory, whereby identities are seen as being formed by the membership of a given (and often single) social group, has shaped much multicultural thinking. Even the idea of multiple identities can be seen as divisive and problematic, as if identities can be divided and delineated as chunks of unchanging essence. Yet to see identities as spatialised, as changing, shape shifting is to argue from and for a different stance and position. Identity positioning and identity work are sites of stuckness through which the immutability of global labelling is transcended. Such sites of stuckness are deeply troublesome and might be seen as liminality writ large. Identity, whilst not unproblematic as a term, position and action, is a threshold concept and a source of much troublesomeness if we evaluate the shifts seen in Hamlet (Shakespeare, 1601). The transformation which Claudius (his uncle) detects in Hamlet is not static but continuous, such that Hamlet's identity evolves with his conceptions of himself, his position as seen by others, his location of himself and the way in which he shifts from a mourning, troubled troublemaker to being a rogue and player and finally to both avenger and rightful (if dead) King.

Spatial identities, then, are identities on the move, shaped by changing practices and cultures in higher education, but they are on the move in ever shifting spaces, they are essentially ungraspable. This ungraspability relates to the way in which identities differ and change according to context, culture, role and identity. Through understanding our spatial identities it may be possible to map the ways in which we might constitute ourselves as academics, might engage in these diverse spatial zones and might find means of reconstituting our practice, so that it reflects the complex spatialities in which we work. Further the mere exploration of spatial identities often moves the identity explorer into liminal states. Take for example the delineations of liminality in Land, et al. (2008).

It could be argued, and increasingly is, that cyberspace has resulted in a sense of multiple identities and disembodiment, or even different forms of embodiment. Further, the *sense* of anonymity and the assumption that this was what was understood through one's words rather than one's bodily presence, is becoming increasingly unmasked through immersive virtual worlds. The bodily markers that are used to present ourselves in life, clothes, ethnicity, gender and speech may be represented (differently) in Second Life, but they also indicate choices about how we wish to be seen or the ways in which we might like to feel differently. Furthermore, authors such as Seymour (2001) have suggested that although the physical body is invisible, meanings, mannerisms, behaviours and unstated assumptions are clearly visible in online communication.

The realization of the existence of spatial identities results in movement into stuckness, disquietude and perplexity. Yet the sense of disturbance is often not seen as identity work or even a challenge to identity. The realisation that one is playing with one's identities prompts both questions and realisations that our identities are troublesome and uncertain. Thus in the process of trying out new identities, what I would term our representative identities, questions arise about the impact of these representative identities on our physical, embodied or place-based identities such as:

- In immersive virtual worlds in what ways and to what extent do immersive virtual world identities spill over into work or home identities?
- How do in-world identities impact on or prompt reformulations of other identities in other 'worlds?'
- Does the in-world artifice prompt us to lie and pretend more in real life?

What all of this does seem to point to is a form of liminality between our various identities, in-between identities. Such identities would seem to be provisional, constantly changing and thus we are always necessarily on the move. Yet, our identities do not always sit easily with one another, therefore collision and uncertainty result in disquietude and a sense of fragmentation. Such disquietude serves to confirm that identity work is not only an ongoing task but also a form of musical chairs:

> No 'beds' are furnished for 're-embedding', and such beds as might be postulated and pursued prove fragile and often vanish before the work of 're-embedding' is complete. There are 'musical chairs', of various sizes and styles as well as of changing numbers and position, which prompt men and women to be constantly on the move and promise no 'fufillment', no rest and no satisfaction of 'arriving', of reaching the final destination, where one can disarm, relax and stop worrying. (Bauman, 2000, pp. 33–34)

CONCLUSION

Curricula need to become a series of open-ended spaces rather than a series of permissions to proceed that focus on compliance and rule-based models. Such open-ended curricula will be provisional, unstable and uncertain, and will reflect the translocational state of the University of the Future. Academe is littered not only with uncertainty and ambiguity but also liminal states and spatial identities. Pedagogy and play, dialogic translation and runaway pluralism are introducing new spatial zones and practices. At the same time the relationship between digital and print cultures appear to collide in in-between world spaces, thus disjunction and ways of being slip across the gashes of time. There is an escalating collision of worlds in higher education whereby the monsters of the digital are invading print-locked cultures of the past and ushering in as yet undiscovered identity.

REFERENCES

Bakhtin, M. M. (1984). *Problems of Dostoevsky's Poetics.* Manchester: Manchester University Press.

Bauman, Z. (2000). *Liquid Modernity.* Cambridge: Polity Press.

Clandinin, D. J., & Connelly, F.M. (1994). Personal experience methods. In N. K Denzin, & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research.* Thousand Oaks, CA: Sage.

Conole, G., de Laat, M., Dillon, T., & Darby, T. (2006). JISC LXP Student experiences of technologies – final report, JISC report, November Aviable at http://www.jisc.ac.uk/publications/ publications/ lxpfinalreport.aspx (13 Febraury, 2009)

Creanor, L., Trinder, K., Gowan, D., & Howells, C. (2006). LEX. The learner experience of e-learning final report. Available at http://www.jisc.ac.uk/uploaded_documents/LEX%20Final%20Report_ August06.pdf (14 March 2007)

Eriksen, T. H. (2001). Tyranny of the Moment. Fast and Slow Time in the Information Age. London: Pluto Press.

Ferreday, D.J., Hodgson, V.E., & Jones, C. (2006). Dialogue, language and identity: critical issues for networked management learning, *Studies in Continuing Education,* 28(3) 223–239.

Gee, J.P. (2004). What video games have to teach us about learning and literacy? Hampshire: Palgrave Macmillan.

Heidegger, M. (1985). *Being and time.* Oxford: Basil Blackwell.

Jung, K. (1977). The Symbolic Life: Miscellaneous Writings The Collected Works of C. G. Jung, Volume 18 Princeton: Princeton University Press

Kane, P. (2005). The play ethic: a manifesto for a different way of living. London: Pan.

Kinchin, I.M., Cabot, L.B., & Hay, D.B. (2008). Visualising expertise: revealing the nature of a threshold concept in the development of an authentic pedagogy for clinical education. Presented at Threshold Concepts Symposium, Queen's University, Kingston, Ontario. 18–20 June

Land, R., Meyer, J.H.F., & J. Smith. (2008). *Threshold concepts within the disciplines.* Rotterdam: Sense.

Malaby, T. (2006). Parlaying Value: Capital in and Beyond Virtual Worlds. *Games and Culture* 1(2), 141–162

Meyer, J.H.F., Land, R., & Davies, P. (2008). Threshold concepts and troublesome knowledge (4): Issues of variation and variability. In R. Land, J.H.F. Meyer, & J. Smith, *Threshold concepts within the disciplines.* Rotterdam and Taipei: Sense Publishers, 59–74.

Olsen, S.F., Jensen, S. S., Bolander, K., Deepwell, F., Jones, C. & Mann, S. (2004). *Narratives From the 3D Agora-world* Proceedings of the Networked Learning Conference, 2004 University of Lancaster.

Available at http://www.networkedlearningconference.org.uk/past/nlc2004/ proceedings/ individual_ papers/olsen_et_al.htm (2 July 2007)

Rieber, L. P., Smith, L., & Noah, D. (1998). The value of serious play. Educational Technology, 38(6), 29–37.

Savin-Baden, M. (2006). Disjunction as a form of troublesome knowledge in problem-based learning. In J. Meyer, & R. Land (Eds), *Overcoming Barriers to Student Understanding: Threshold Concepts and Troublesome Knowledge.* London: Routledge.

Savin-Baden, M. (2007). *Learning Spaces: Creating Opportunities for Knowledge Creation in Academic Life* Maidenhead: McGraw Hill.

Savin-Baden, M. (2008). From Cognitive capability to Social reform? Shifting perceptions of learning in immersive virtual worlds. *Special issue on Learning in Immersive Virtual Worlds*, *ALT-J*, 16(3), 151–161.

Sen, A. (2006). Identity and Violence: The Illusion of Destiny New York: Norton.

Seymour, W. (2001). In the flesh or online? Exploring qualitative research methodologies. *Qualitative Research,* 1(2), 147–168.

Sibbett, C.H., & Thompson, W.T. (2008). Nettlesome knowledge, liminality and the taboo in cancer and art therapy experiences: implications for learning and teaching. In R. Land, J.H.F. Meyer, & J. Smith (Eds.), *Threshold Concepts within the Disciplines*, Rotterdam / Taipei City: Sense Publishers (pp. 227–242).

Shakespeare, W. (1601). *Hamlet* The Complete Pelican Shakespeare (2002) London: Penguin

Sharpe, R., Benfield, G., Lessner, E., & DeCicco, E. (2005). Learner Scoping Study: Final Report. Available from www.jisc.ac.uk/index.cfm?name=elp_learneroutcomes. (19 November 2007)

Trafford, V. (2008). Conceptual frameworks as a threshold concept in doctorateness. In R. Land, J.H.F. Meyer, & J. Smith (Eds.), *Threshold concepts within the disciplines*. Rotterdam: Sense.

Virilio, P. (1999). *Politics of the Very Worst*. New York: Semiotexte.

Vygotsky, L. S. (1978). *Mind in Society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press (Original work published 1930).

NOTES

[i]   Fictitious university name

TEACHERS' PROFESSIONAL DEVELOPMENT
AND LEARNING

EARLY FORMATIONS OF TEACHER IDENTITY: PROSPECTIVE TEACHER CANDIDATES NOTIONS OF TEACHER ROLES

Lisa A. Gross and Susan D. Gilbert

INTRODUCTION

As teacher educators, we are responsible for the preparation and growth of prospective teacher candidates and contribute greatly to their effectiveness and success as future practitioners. In the past two decades, there has been an increasing interest in the development of teacher and professional identities, with studies conducted across levels of experience. The development of a teaching identity, defined here as an individual's understanding of self in a professional context, has been examined with preservice and student teachers (Travers, 2000; Weinstein, 1990) while teacher and professional identity has been explored in various ways through the narratives and experiences of novice and veteran practitioners (Clandinin, 1993; Kagan, 1992). While such studies have contributed to our understanding of this developmental process, we propose the need for a closer examination of the roles that shape these multiple identities.

Previous research on the beliefs or practices of preservice candidates indicate that teacher education programs have little impact on changing preservice teachers' previously held notions or beliefs. There is also evidence of a perceived disconnect held by preservice candidates between the theoretical and the practical aspects of teaching; of what, in their previous experiences as K-12 students, is valued as compared to what is considered irrelevant or impractical. This implies that before deciding on a career, preservice candidates' prior experiences and interactions with teaching professionals have already shaped their perceptions *of teaching* and as well as their notions *of self as teachers*.

We believe that to develop reflective practitioners, students must first explore and develop an understanding of "self." No course makes this more explicit than the introductory teaching course offered at our respective institutions. Those enrolled are potential teaching candidates (PTCs), individuals who express an interest in the teaching as a career but have yet to be formally admitted into the teacher education program. When PTCs are asked about their interest in the profession, they primarily share examples of teachers' past – ranging from those who were influential and caring to those ineffective and abrasive. The candidates carry forward

notions of what makes a "good teacher" (Kagan, 1992) and in turn, perceive some aspect of self to have that potential.

In these introductory teacher education courses, past schooling experiences of PTCs provide a context for exploring their preliminary teaching beliefs, understanding of professional roles, attitudes toward various social groups, and for examining how their own interests and actions have been shaped by social interactions during these formative developmental years. To develop a teacher identity, we believe it begins with an exploration of self.

As teacher educators, we can no longer disregard the autobiography, the rich funds of knowledge, or the landscape(s) of lived experiences that these potential educators possess (Moll, *et al.*, 2001). In developing a professional identity, the individual must have an understanding of how his own knowledge, beliefs and attitudes have been shaped by various social, cultural and historical influences along the way. This paper reports the preliminary findings from a larger study conducted on role identification and the early formations of teacher identity. Through the candidates' memorable schooling experiences, the identified roles, actions and attributes of former teachers provided a meaningful context for the PTC's examination of self as a future teacher.

THEORETICAL FRAMEWORK

The purpose of this research is to examine how formative schooling experiences have contributed to the PTC's identification of the teacher's role and to explore how these past interactions and experiences have shaped their perceptions of self as future educators. The PTC participants in this study are individuals who have not been formally admitted to a teacher education program and are taking introductory teaching courses. The traditional PTC is immersed in her social role as a college student and is continuously negotiating and reconstructing her personal identities as shaped by various encounters and situations, whereas, the nontraditional PTCs tend to be more goal-oriented, independent and stable in their relationships with a focus of the practical elements of their education (Benschoff, 1991).

Our research actions and data interpretation has been framed within the tradition of *symbolic interactionism* which proposes that human beings act toward things on the basis of the meanings they have constructed over time and that the "self" is a reflection of the individual's accumulated values, roles and identities (Mead, 1938). We contend that sociocultural, historical, and situational conditions have shaped these formative notions of teaching and have contributed to their preliminary conceptualizations of self as teacher. Through this interpretative approach, we explore the meanings that our PTCs have constructed of "teacher" as well as their identification of roles associated with the "act of teaching." Identity theory provides a lens for exploring the self in regard to perceptions of others, focusing on our students' understanding of self through an examination of their personal identities.

While social scientists have multiple frameworks to guide their studies of identify formation, we find role-identity acquisition theory (Burke, 1980; 1991) most

appropriate to our research intentions. The participants are in the process of determining a "fit" between their existing social identities as college students and their potential membership to the teaching profession. In the context of this introductory course, role associated behaviors are introduced, practiced and utilized. Through this process, the PTC explores the correspondence between the meaning of the role and self (Burke & Reitzes, 1981).

There is, in education, a tradition for the autobiography or the storied self-text as an effective and powerful means to study teacher knowledge and teachers' formations of self-in-practice (Pinar, 1988; Clandinin & Connelly, 2000). In our research, we have explored how the recollected past K-12 relationships and experiences of PTCs have helped shape their current self-in-practice identities. Further, we intend to explore the PTCs interpretations of such behaviors and how they inform or contribute to future (teaching) actions.

Connelly and Clandinin (1994) used the narratives of practitioners to illustrate how their professional identities are shaped through daily interactions in various settings. We hope to elaborate on this development of a teacher's identity by delving *into the past* through the self-reportage autobiographies of our present-day teaching candidates and explore those attributes perceived as contributing to their future decisions and actions.

One way of looking at these early formations is through the lens of Leo Vygotsky's theory on early language acquisition where he states:

> Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (*inter*psychological) and then inside the child (*intra*psychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals (Vygotsky, 1978, p.57).

In this context, PTCs report having experiences (primarily positive) within the context of school that had, at their core, an interpersonal/relational component either with their teachers or their peers. These experiences, first showing up on a social plane were then reported by PTCs as being a part of what constructed their notions of teaching excellence. In other words, as per Vygotsky's theory of how they experienced their formulations, first on a social or *inter*psychological plane, and then, later on an individual or *intra*psychological plane. This process of cognitive development known as internalization does not take place in isolation. They are relational in nature and are nested in experiential apprenticeships. Vygotsky viewed these cognitive developments as a result of a dialectical process where the child learns through shared collaborative experiences with more capable others: parents, mentors, and in this study, teachers.

Finally, a study on the development of a teacher identity necessitates a brief context of teacher education in the United States. From state to state, departments of education regulate the teaching licensure programs. In the case of the candidates in this study, the majority of PTCs have grown up in southeastern Appalachia

81

portion of the U.S. in a region commonly referred to as the "Bible Belt." Counties in this region are characterized by its predominantly Christian population and are distinctive in Appalachian heritage. Strong socio-cultural, religious, and historical influences are deeply embedded in the communities in which these PTCs have been raised. A high percentage of those who graduate from teacher education programs in this region will seek positions in their states of licensure, and in many cases, will return as novice teachers to their home communities or those quite similar to their upbringing.

This paper reports findings from a preliminary analysis of survey data collected specific to the formative schooling experiences recalled by the PTCs and their identification of the teacher's role in these experiences. Similar to Weinstein's (1989) study of students' early conceptions of good teachers, we further explore the part played by teachers in these recollections, their attributes and actions, and how these past interactions have shaped the PTC's notions of good teachers.

Research questions:

How does the potential teacher candidate's (PTC) formative schooling experiences shape their perceptions of the teaching profession?

In examining past schooling experiences, how does the PTC describe the role of the teacher?

What attributes does the PTC identify of self that will contribute to their effectiveness as a future educator?

METHOD

Participants

This case study was conducted on three groups of potential teaching candidates and included multiple information sources to represent what Cresswell (1998) describes as a bounded system. Two groups of students attend Appalachian State University and represent individuals in both the non-traditional and traditional teacher education programs. *Extension* group includes 25 potential teaching candidates enrolled in the introductory teaching course at an extension facility, thirty miles from the main campus. All students are elementary education majors, age ranging from 20-55+ years of age. Twenty-one are female and four are male; 65% of the *Extension* population is currently working in local school systems in some capacity – having assumed roles as teaching assistants, food service workers, school volunteers and as involved parents. Approximately 12% of the *Extension* participants are working in a profession/vocation other than teaching.

Public group is comprised of 17 students, 13 females and 4 males, averaging 20 years of age. This group represents the more typical student population enrolled in the university's introductory teaching course. Most *Public* group members live on campus and vary in degree program interests. Indicated certification areas include elementary education (5), secondary education (10), physical education

(1), vocational tech (1) and undecided (1). *Private* group is a traditional group of students enrolled in the teacher education program at Lees-McRae College. There are 14 students, 9 female and 5 male; the indicated areas of licensure included 10 elementary, 1 Theater Arts, and 3 Physical Education.

During the first class meeting, we inform the candidates of our research interests, describe the research protocol and make our intentions explicit. These initial actions demonstrate to these prospective candidates that education is in fact, "at base, a moral enterprise . . . (and) ultimately about the formation of persons" (Soltis, 1990, p. 248). With consent from the PTC, course assignments (names replaced with numeric aliases) and multiple sources of information from class discussions, assignments and in-class activities are collected.

Instrumentation

This paper is a part of a larger study conducted on the prospective teaching candidate's understanding of self, role identification (in a practicum setting), and their ongoing identity development as teacher practitioners. Student surveys, tutoring fieldnotes and teaching philosophies were common artifacts shared across groups and collected for analyses. The primary instrument used to explore teacher role and attributes identified by the PTCs was an informal participant-construct survey (LeCompte & Preissle, 1993) distributed during the Fall, 2008.

The survey is a class assignment distributed to all PTCs prior to or during the first class meeting. The recollection of memorable schooling experiences, combined with student biographical information, assists in the preparation of class lectures, discussions and activities related to the teaching profession. The survey consists of eleven open-ended items and two Likert scale items; the items were constructed around syllabus topics and asked candidates to share memorable schooling experiences, identify teacher roles in these experiences, and to rate favorite and superior teachers. The final item includes an examination of the PTC's self-attributes perceived as significant in becoming an effective teaching profession.

The following items from the survey were analyzed for the purposes reported in this paper:
– Item 1: In the context of a K-12 classroom, recollect your most memorable experiences.
– Item 2: In examining the experience previously described, what role did the teacher play in making it happen?
– Item 11: Indicate your response to the following statement: My favorite teachers were also superior teachers.
    a. Strongly agree
    b. Agree
    c. Agree somewhat
    d. Disagree
    e. Strongly disagree
– Item 12: Would you say your favorite teachers were superior teachers? Explain.

– Item 13: Thinking about your own personal attributes, what dominant characteristics do you possess that best represent the type of teacher you hope to become?

Data Analysis

Using Cresswell's (2009) approach to qualitative analysis, the researchers grouped survey items together, focusing first on the participants' schooling recollections and the identifications of teacher's roles within those contexts. Similar to Burger's (1991) system used in his study of two classroom teachers, the contexts and actions noted in the PTCs' responses helped in determining the relative importance of teacher's roles and identified attributes in varying teaching situations. Both researchers read through the data sets to gain a general sense of the experiences shared and the teacher's roles in that situation. Noting that similar patterns in responses were evident across all three groups, the survey data was then divided into two sets: *extension* and *public/private*. Each researcher independently conducted a keyword analysis on her data set and developed a corresponding codebook that identified and explained the codes within the data sets.

Upon completion of these two survey items, the researchers convened and compared coding categories that had emerged. Discrepancies in interpretation of meaning were detected, discussed, and redefined. The memorable schooling experiences shared across groups were categorized, resulting in three over-arching themes: *connecting K-12 learners, classroom climate, and instructional artistry.* Metaphors, that captured the essence of self, emerged from these discussions. The coding of the remaining open-ended survey responses was conducted over the next four months. The researchers met frequently to discuss and compare data findings of the three groups. In some cases, qualitative data was quantified to illustrate frequency of response; this transformation enabled the researchers "to compare quantitative outcomes with the qualitative data" (Cresswell, 2009, p. 218).

In addition*, Extension, Public,* and *Private* group responses were examined in isolation, allowing the researchers to compare data patterns within groups. Quantifiable items specific to teacher effectiveness ratings or measures of superior teachers resulted in enumerative listings by participant that could be compared and noted for frequency (LeCompte & Preissle, 1993). All data analysis phases included cross-check coding and the on-going comparison and clarification of interpretative outcomes by the researchers. Qualitative validity was maintained throughout the coding and categorization process; intercoder agreement, resulting from frequent meetings and discussions throughout the analysis process, contributed to the reliability in the procedures and the authenticity of findings reported in the following section.

FINDINGS

As evident in Table 1, teacher relationships and extracurricular activities were the most frequently cited memorable schooling experiences. Specific to teacher relations, three subcategories were constructed to capture how PTCs' described these interactions with former teachers: teacher affective attributes (kind, caring, compassionate, strict, wise), instructional behaviors (engaging, entertaining, fun, energetic), and self-identification (challenged me, motivated me, supported me).

Table 1: Memorable Schooling Experiences of Potential Teaching Candidates.

Question 1. (most memorable schooling experience)	Percentage of PTC responses
Content/Curriculum	11
Extracurricular	34
Relationship w/Teacher	38
Relationship w/Peers	9
School environment	4
"Life" event	3

Thirty-four percent of the PTCs described their participation in extracurricular programs or events. Within this category, four subcategories were developed for representation of patterns indicated by respondents (athletic/club events, programs, performances and school rituals). Nine of the thirty-four responses specific to extracurricular memories were related to personal performances (play, recital). Across the remaining three subcategories, participation in school traditions (prom, homecoming), as an athlete or club member, or memories of being a teacher cadet or tutor averaged five responses. The vignettes provided by *Extension* group members were more likely to describe relations with teachers; *Public* and *Private* participants were more likely to report their involvement in extracurricular activities.

During the initial coding of the Question 2 data, the researchers discovered that the PTCs responses described the teachers' actions during the experience as opposed to identifying a particular role. Given this, the researchers shifted from keyword indicators (role identification) to descriptive phrases capturing the part the teacher played in the memorable experience. This resulted in seven categories indicated in Table 2.

Table 2. Role of the Teacher.

Question 2. (what role did teacher play in making most memorable happen?)	Percentage of PTC Responses
Interesting/Fun approach	29
Helpful/Supportive	28
Love of Job	10
Respectful	12
Identified role	14
Safe environment	5
Challenged me	2

For those PTCs who responded to this question, similar patterns in responses were noted or reiterated. The majority of responses fell into two categories: teacher's instructional actions or the teacher's support during the particular incident described. Only twelve responses identified a role, with the majority indicating facilitator/guide. *Extension* group members more frequently described the teacher's respect for students or their willingness to support and help. Approximately 64% of the *Public* and *Private* group members described how the instructional actions of the teacher differed and that these differences in approach had a positive effect on their learning. The category of supportive/helpful was equally distributed across all groups; 52% of the respondents described a supportive and/or helpful teacher.

Table 3. Rating of favorite teachers as superior teacher.

Question 11. (Likert: favorite teacher also superior teacher).	Percentage of PTC Responses
Strongly Agree	51
Agree	26
Agree somewhat	0
Disagree	0
Strongly disagree	2
No responses	21

In the last portion of the survey, questions were constructed to gather insights on the PTCs' perceptions of "favorite" teachers during their formal schooling, Kindergarten through grade 12 (K-12) experiences. In Table 3, Likert scale responses across all three groups overwhelmingly indicated that the candidates favorite teachers were perceived as superior teachers. Thirty-five candidates

responded to the follow-up question, explaining the rating previously indicated. Of these responses (Table 4), nearly half of the PTCs indicated that their favorite teachers were superior because *they demonstrated a love of the job* or a passion for teaching. Instructional variation, the teacher's ability to make learning "exciting, fun, and engaging" was the next highest response at 17%. Of particular interest, *Extension* group members were more likely to indicate "love of job" in their responses and to describe the actions of these passionate teachers whereas *Public* and *Private* group members' responses were distributed evenly across categories.

Table 4. What made my favorite teacher a "superior teacher?"

Question 12 Explain: (favorite teacher also superior teacher).	Percentage of PTC Responses
Loved Their Job	49
Leader	3
Fun/Exciting/Creative	17
Challenged Students	9
Helpful/Caring/Supportive	11
Mastery of Content	11

In the final survey item, the PTCs were asked to identify personal attributes that represent the type of teacher they intend to become. *Public* and *Private* group data were compiled and analyzed as one set, representing traditional students across areas of licensure from both institutions. *Extension* group responses were coded separately for comparative purposes. Table 5 illustrates the three primary themes that emerged given the attributes (and frequency) in responses. Examples of the candidate's responses for each theme and subcategory or theme are provided.

In responding to Question 13, the PTCs often indicated two or three self-attributes perceived as significant in becoming a teacher. Across groups, candidates most frequently identified attributes that were relational (57 responses), with subcategories representative of the personal characteristics deemed necessary in one's daily social interactions with students. The second theme, "Creating classroom climate" represents those candidates (26) who perceived a self-attribute that naturally contributed to a necessary feel or atmosphere in the learning environment. The final theme, "Instructional artistry" differed from the other themes in that the PTCs reported how these personal attributes had been identified by others or reinforced through past teaching situations (vacation bible school, tutoring, etc.).

Table 5. PTC's Identified Self-Attributes.

Question 13: Themes and sub-categories of self-attributes	*Defined as* (with PTC representative sample)
Connecting with K-12 Students	*Being with; acting toward: The avuncular (relational)*
Caring	"I just think I am very caring; I truly want to change kids' lives for the better."
Understanding/ Patient	"I know I can tolerate a lot."
Loving	"Loving and willing to help in any way possible."
Supportive/Inspiring	"I will help make the dreams of others come true."
Creating classroom climate	*Teacher as center: The maestro (individual)*
Energetic/Enthusiastic	" I [will] generate an enthusiastic atmosphere in my classroom via interactions with my students."
Humorous	"I like to have fun and joke around so I think my students will enjoy the class."
Love of Job/Love of Children	"I believe I have to truly love my job and not just do it because I have to."
Passionate	"I am extremely passionate about my topic and how to generate an enthusiasm atmosphere in my classroom."
Fair	"I will fight for my students and against their low self-esteems."
Instructional Artistry	*A way of doing (actions/goals): The bricoler (individual)*
Teaching of Content	"I've been told that I have a way of relating difficult information in a clear and logical fashion." I want to give my students a cure for test anxiety."
Innovative Delivery	"I have many ideas to involve different teaching strategies for different types of learners." "I will make school fun."

Sixty-seven percent of the *Public* and *Private* participants (20 of the 30) indicated their capacity for nurturance of students, an attribute categorized within the affective "being with" relational theme. Next in frequency were more teacher-centered attributes or what self brings to the classroom. Over half (53 %) of *Public* and *Private* group members identified self-attributes and envisioned themselves as teachers in their future classrooms.

DISCUSSION

Our first research question explored PTC's past schooling experiences and found that they fell into three general categories: The way teachers related to the PTCs, the way the PTC's teachers taught, and the PTC's perceptions of their teacher's job satisfaction. The data also revealed that favorite teachers were perceived as superior teachers; when asked to explain why they felt favorite teachers were superior, overwhelming students responded that they "loved their job." The *Love of job* responses revealed a shift from the subjective (self) as personal recollections demonstrated an awareness that even at a young age, many of the candidates identified those teachers who loved their jobs.

We found this to be especially prevalent in the *Extension* group. We believe this demonstrates the developmental differences of these primarily adult-learner PTCs, which reinforces Maslow's notion of self-actualization where, in this case, their reported experiences with school, although inextricably bound with relationships, go beyond situating themselves as 'center.' Next was the emphasis on the teachers' ability to create innovative instructional activities. PTCs' memories and reportage indicates that their self-identities remain bound in the personal and social realms.

When asked to identify the role of the teacher in their memorable experiences, only twelve PTCs indicated a specific role (supporter, nurturer, mentor) while the majority tended to describe attributes unique to that teacher (interesting, fun approach, helpful/supportive). These findings are not surprising as they reconfirm and reinforce historical and social expectations of the teaching profession in regard to establishing relations with students and in the facilitation of curriculum.

We asked PTCs to describe the actions and attributes of superior teacher and then decide if their "favorite" teachers were superior. Surprisingly, the PTCs' interpretations rarely centered on their experiences (self) or needs as learners, but rather that of what the teacher's attitudes and actions conveyed. The PTCs reported that their favorite teachers were superior as evident in their teaching actions – these practitioners loved their job (17). A number of candidates noted the teacher's creative or innovative approach in instructional planning and delivery. In reflecting on past schooling experiences, the PTCs had explored self through a memorable experience, asked to identify the teacher's role, and then to compare past teachers to their ideal notions of superior teachers. We feel that throughout this process, the candidates moved from a more subjective view of these relationships (self as center of experience) to a more observant objective posture when asked to identify and in a sense, evaluate their favorite teachers according to the attributes and actions constructed to describe that of a superior teacher.

Finally, we briefly discuss our preliminary findings on the early formation of teacher identities. The recurring theme across data sources identified shared attributes of the teaching professional as supportive and facilitative the need to establish *relations with students*. The metaphor we chose to describe this in terms of teacher role is that of the benevolent uncle, or *The Avuncular*, someone who is all-understanding, gently prodding their students to consensus, guiding them either to the "truth" or to an agreeable compromise. The second theme that emerged

placed the role of the teacher as center, the facilitator or guide. For this, we chose the metaphor of the orchestral conductor or *The Maestro*. The daily actions of the teacher promulgate a rhythm of high energy and creativity when on stage in his classroom.

Our final theme centered on the internal landscape of the PTC's instructional artistry and actions. What is distinctive about this category is that in addition to PTCs' self-identification, they reported that these attributes have been reinforced by the perceptions of others. The metaphor we chose for this was *The Bricoler*. In this context, *The Bricoler* is one who enters a situation and creates, organically, with the materials at hand. In other words, the materials emerge into a form rather than forcing them into preconceived or existing structures. While the content to be taught remains the mortar or the unifying agent, the structure emerges organically respecting the composite parts, the diversity, and the differentiations in the classroom. This we believe is the difference between an artist and a merely trained practitioner, for the artist (the favorite teacher in this case) allowed whom they were to guide, to lead their instruction.

IMPLICATIONS IN TEACHER EDUCATION

The implications for these early findings are multi-layered and have deep resonances we believe in the areas of early professional identity formations, teacher retention, early teacher education, and reciprocal-reflective practice. The strands we would like to address for this paper have to do with early preparation, reflection, and retention. The strong (and surprising) 'love of job' data suggests that students perceived that their teachers loved their job and this had positive far-reaching effects in their later adult decision to become a teacher. Currently there is a national teacher shortage, particularly in the areas of Bilingual/ESL, Special Education, and Math and Science teachers (Gerald & Hussar, 2000). Disturbing are the reports on new teacher attrition in the US indicating that many leave within the first five years of practice. The statistics vary of course from state to state, ranging from 33% to 57% but the reported number one reasons for leaving the profession is "lack of support in the workplace." There are few other degreed/licensed professions where these attrition numbers would be tolerated or acceptable. This is where we believe reciprocal (shared) reflective practice can play a large role in the early vetting of PTCs. There is a gap in the curricula in many teacher education programs, where little or no time is spent in the development of reflective practice, where time is allotted for PTCs to systematically and critically examine their inner lives and formative early schooling experiences to better understand why they want to be teachers. We believe that with this practice, PTCs can examine their early experiences so, in part, they are conscious of and responsible for what drives their motivations to be teachers in the first place! Parker Palmer in his seminal work, *The Courage to Teach* addresses this when he writes:

As I teach, I project the condition of my soul onto my students, my subject,

and our way of being together. Viewed from this angle, teaching holds a mirror to the soul. Knowing myself is as crucial to good teaching as knowing my students and my subject. In fact, knowing my students and my subject depends heavily on self-knowledge (Palmer, 1998).

We, as teacher educators, need to do a better job developing curricula throughout the teacher education programs that support and empower teachers; curricula that offer pre-service teachers best-practice strategies that promote introspection that is then 'aired and shared'; a practice that unifies and combats solipsism and seeks to develop and promote true collegiality in the workplace.

REFERENCES

Benshoff, J. M. (1991). Nontraditional college students: A developmental look at the needs of women and men returning to school. *Journal of Young Adulthood and Middle Age*, *3*, 47–61.

Burger, D. (1991). The use of case method in educating professionals. Unpublished doctoral dissertation. University of Colorado, Boulder.

Burke, P. (1980). The self measurement requirements from an interactionist perspective. *Social Psychology Quarterly*, *43*, 18–29.

Burke, P. (1991). Attitudes, behavior and the self. In J. Howard and P. Callero (Eds.), *The self-society interface: Cognition, emotion and action*. New York: Cambridge University Press, 189–208.

Burke, P. and Reitzes, D. (1991). The link between identity and role performance. *Social Psychology Quarterly*, *44*, 83–93.

Clandinin, D.J., & Connelly, F.M. (2000). *Narrative inquiry: Experience and story in qualitative research*. San Francisco: Jossey-Bass.

Clandinin, D. J., & Connelly, F. M. (1994). Personal experience methods. In N. K.Denzin & Y. S. Lincoln (Eds.). *Handbook of qualitative research*. Thousand Oaks, CA: Sage, 413–427.

Clandinin, D.J., (1993). Teacher education as narrative inquiry. In D.J. Clandinin, A. Davies, P. Hogan, & B. Kennard (Eds.), *Learning to teach, teaching to learn: Stories of collaboration in teacher education*. New York: Teachers College Press, 285–292.

Creswell, J. (2009). *Research design: Qualitative, quantitive, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Creswell, J. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage Publications.

Gerald, D.E., & Hussar, W.J. (2000). Projections of education statistics to 2010: Washington, D.C. *U.S. Department of Education, Office of Research and Improvement*.

Kagan, D. M. (1992). Implications of research on teacher belief. *Educational Psychologist*, *27*(1), 65–90.

LeCompte, M.D., & Preissle, J. (1993). *Ethnography and qualitative design in educational research* (2nd Ed.) New York: Academic Press.

Mead, G.H. (1938). *The philosophy of the act*. Chicago: The University of Chicago Press, 542–548.

Moll, L., Amanti, C., Neff, D. & Gonzalez, N. (2001). Funds of knowledge for teaching: Using a qualitative approach to connect homes and classrooms. *Theory Into Practice*, *XXXI*(2*)*, 132–141.

Palmer, P. (1998). The heart of a teacher: Identity and integrity in teaching. In: *The courage to teach*. Jossey Bass: New York, 9.

Pinar, W. (1988). Autobiography and the architecture of self. *Journal of Curriculum Theorizing*, *8*(1), 7–36.

Soltis, J. (1990). The ethics of qualitative research. In E.W Eisner and A. Peshkin (Eds.), *Qualitative inquiry in education: The continuing debate*. New York: Teachers College Press, 248.

Travers, K. A. (2000). *Pre-service teacher identity made visible: A self-study approach.* Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.

Vygotsky, L.S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Weinstein, C. (1990). Prospective elementary teachers' beliefs about teaching: Implications for teacher education. *Teaching and Teacher Education*, 6, 279–290.

Weinstein, C. (1989). Teacher education students' perceptions of teaching. *Journal of Teacher Education, 40*(2), 53–60.

EXPLORING THE NATURE OF TEACHERS' PROFESSIONAL LEARNING

John Loughran, Amanda Berry, Allie Clemans, Stephen Keast, Bianca Miranda, Graham Parr, Philip Riley and Elizabeth Tudball

INTRODUCTION

In recent times, the distinction between traditional Professional Development (PD) and Professional Learning (PL) is becoming increasingly apparent. The shift associated with the intent and the language between PD and PL is evident in the report by Wei et al. (2009). The distinction between PD and PL is also captured by Mockler (2005) who characterized PD as something delivered in a 'spray-on' manner in which teachers attend a 'PD day' then return to their schools with the expectation that they will implement the workshop ideas in their own practice. What is clear is that the professional learning of teachers has become increasingly recognised as important in enhancing not only the quality of teaching in schools but also for developing the teaching profession more generally (Berry, Clemans, & Kostogriz, 2007). PL approaches tend to emphasize practices that are: sustained over time; responsive to the specifics of school and classroom contexts; underpinned by research and practice-based evidence; and, supported by professional learning communities and collaboration (Hayes, Mills, Christie, & Lingard, 2006; Hoban, 2002). In short, PD could be viewed as doing things to teachers so that they apply them in their practice while PL is about working with teachers to help them develop their skills, knowledge and abilities in ways that are responsive to their (pedagogical) needs, issues and concerns.

In Victoria, Australia, the Department of Education and Early Childhood Education (DEECD) sought to develop a suite of programs designed to support teachers' professional learning (DEECD, 2006) and contracted the Pedagogy and Professional Learning Research Group at Monash University to develop and lead a professional learning project for primary and secondary teachers titled the Leading Professional Learning (LPL) program.

The program was designed to support teachers who were responsible for leading professional learning in their respective schools, by assisting them in exploring issues, concerns and dilemmas in their own practice and to document that professional knowledge through the development of cases. The LPL program comprised:
– 4 day structured program (1 x 2 days, 2 x 1 day) spread over a teaching year with a strong emphasis on teacher research;

- Grouping teacher participants into Peer Support Research Networks that further supported their ongoing professional learning between program meetings (7-10 participants per group);
- Peer Support Research Network leaders (academic staff – authors of this paper – involved in conducting the program);
- School-based research projects conceptualized, developed, directed and completed by participant teachers;
- Case writing, review and the development of learning communities.

The LPL program aimed to:

- strengthen participants' knowledge of approaches to learning through theories of professional learning communities;
- develop participants' understanding of the DEECD's Principles of Highly Effective Professional Learning (DEECD, 2005);
- build participants' capability to design, implement and evaluate effective school-based professional learning that supports improved teaching and learning; and,
- increase participants' ability to successfully implement change initiatives that contribute to continued growth and development of their school.

A key task for participants was to design a PL Project appropriate for their school context, aligned with school priorities and, most importantly, to be 'doable' within a three month time frame. Some projects focused on establishing new processes for professional learning such as mentoring for new staff, the development of induction programs and peer observation practices, through to curriculum innovations and departmental policy implementation related to the Performance and Development Cultures in schools.

To help focus participants on their learning about leading PL, the final program task was a one-day case writing activity. Participants were asked to carefully consider an important learning incident during the implementation of their project that caused them to reflect on and articulate their leadership capabilities. Using a case writing methodology, participants constructed their cases, shared and discussed their drafts, and then through collaboration with their Peer Network Leaders, further edited, refined and collated their cases in preparation for publication as a book.

The use of case writing (Lundeberg, 1999; Shulman, 1992) was initiated in an attempt to capture participants' understanding of their professional learning through their experiences of the program. Cases have been viewed as important for providing a real-world classroom context in which to foster discoveries about teaching and learning at both a theoretical and practical level. Cases highlight the complexity of teaching in ways that are readily identified with by teachers. Because cases offer insights into the specialist knowledge and skills of teachers, they form a strong base from which ongoing professional learning might be developed. Hence, they were used in the program because they were considered as an important way of developing participants' knowledge of practice as leaders of professional learning. Cases then became a catalyst for fostering participants' reflection on practice, and as a way of articulating their key learning experiences; not least because the act of writing cases facilitates and enables teachers' professional learning (as is clearly evident in the data below).

An important reason for implementing case writing was based on the perceived value of participants documenting and sharing their professional knowledge of practice. Therefore, participants were encouraged to think carefully about what they were writing about in terms of responding to the question: "What has been learnt and why does it matter in understanding a given situation?"

Cases were constructed around responding to the following prompts:
– What is this a case of?
– What are the facts of the case?
– What contextual details are important to help in analysing/understanding the case?
– What issues/dilemmas/tensions do you see in the case?
– What solutions exist/how might you manage the dilemmas/how do you feel about the situation?
– What is in the case that would help others identify with it?
– What approach to portrayal would help to strengthen the case and make it engaging for others?

RESEARCH APPROACH

The research approach developed included two parallel aspects of data collection and analysis. The first involved collecting participants' cases and organising and analysing them using a thematic approach in terms of the intent/topic of the case. (Of the 75 participants, 61 submitted their final case). The process involved two of the researchers reading the full set of cases and independently coding the case content to develop thematic groupings under which all cases could be allocated.

The second involved interviews with a volunteer sample of participants (n = 12) one year after the completion of the program. For this data set, a researcher who had not been involved in the LPL program contacted all participants and sought volunteers to be interviewed about their experience of the program. The researcher then organised a time and place convenient to the volunteer to be interviewed using a semi-structured interview protocol (below). The interviews were audio taped and transcribed and these data sets were then subjected to independent content analysis. Interviewees were assigned pseudonyms and the results of coding were then used as a basis for the subsequent analysis and reporting. Through these two data sets, the nature of professional learning, the value of the experience, the impact of participants' learning on their practice and their views of their own professional growth were able to be more fully explored.

Semi-structured interview protocol:
1. What did you actually hope to get out of the LPL program?
2. Can you give any examples of how the program helped you in your professional learning?
3. How has your learning from the program actually been sustained? Any examples?
4. What did you think about the process/experience of developing and writing

cases? Have you used them?

5. What did you learn from your case writing experience, what value did you see in actually writing a case?
6. What do you want or need in terms of professional learning now?
7. Where do you expect to get professional learning from?
8. What do you think about the idea of teacher professional knowledge? Does it have any meaning to you?
9. What were your aims for your project, what did you get out of it?
10. Is there anything else we haven't discussed that you would like to raise?

RESULTS

Case writing

The cases were analysed and thematically grouped as one way of exploring the nature of the issues that prompted participants to reflect on their work as leaders of professional learning in their schools. Table 1 offers an overview of that analysis.

Table 1: Thematic analysis of cases.

Cases theme	Number of cases
Leading professional learning	14
Stability and change	12
Learning to work with teachers	9
Recognizing multiple needs and perspectives	8
Supportive leadership	7
Learning through performance and development	6
Peer observation	5
TOTAL	*61*

Being an experienced classroom teacher does not necessarily mean that the shift to leading the professional learning of others is simple. It is interesting to note that as all participants were experienced classroom teachers that leading professional learning (n = 14), learning to work with teachers (n = 9) and recognizing multiple needs and perspectives (n = 8) were three of the top themes that attracted these authors' attention (i.e., comprising approximately 50% of the cases written). Despite these participants' knowledge and ability as teachers, it seems that the shift from teaching students to teaching adults captured the attention of many of the participants.

This shift refocussed many participants' attention on their teaching skills as they came to see a need to develop their knowledge and practice (or perhaps begin to see its significance) in supporting the learning of their colleagues. In the shift from a teacher's predominant focus on classroom teaching to that of supporting

the learning of colleagues, these teachers began to reframe (Schön, 1983) teaching and learning situations in ways that encouraged their own learning about practice in new ways. However, that does not mean that such a shift is automatic or simple. The experience of change in their teaching context (students to adults) led to their search for a knowledge base from which to draw on in order to foster their colleagues' learning. This, in turn, led to an important requestioning of their taken for granted assumptions about how they approached their teaching.

Analysis of the cases comprising the theme of stability and change illustrates that their focus on leading professional learning carries over to not only what it meant to participants at a personal (leadership) level, but also in giving them insight into the amount of change experienced by teachers generally. The cases demonstrate participants' concerns about the ways in which teachers are constantly faced by changes in their roles and the expectations placed upon them. In some instances, they questioned whether change was meaningful or appropriate to their major role of teaching students, as opposed to being driven more by the demands of accountability and increased managerialism. In essence, this theme highlighted the difficulties these case authors experienced in trying to plan for effective change with colleagues who were 'change weary'.

Generally, what these cases demonstrated was that these participants began to look into their practice in ways that highlighted professional learning as being grounded in something personally relevant and particular to their given situation, rather than something imposed or mandated by others. The notion of autonomy and control then emerges as an important aspect of professional learning and as a catalyst for change.

Interview data

One year after the completion of the LPL program, participants were invited to be interviewed about their experiences of their professional learning as a consequence of the program. Those who volunteered to be involved (n = 12) were interviewed and analysis of these interviews highlighted the following themes:
– Participants' goals for LPL
– Perceived value of the program
– Perspectives on cases
Each of these is elaborated on individually in the following sections.

Participants' goals for LPL: Participants who spoke about their goals for being involved offered views that focussed on their personal concerns about gaining leadership skills. The overwhelming response (8/12) was associated with the need to develop confidence in their skills. Teachers saw a need for such development because of the demands of their role as a leader of professional learning. Perhaps the notion of confidence could be interpreted as a need for reassurance to successfully lead the professional learning of their colleagues:

[LPL helped because] it just gave me more confidence. …When working

97

with your peers, it gives you the confidence, you actually do have a lot of skills and a lot of experience to share and it validates what you already know. (Natalie)

For two of the participants, the development of knowledge and skills was important in terms of their ability to use such development as an entrée to promotion and to continue to enhance their work in a positive manner.

I wanted to develop my skills in leadership and move towards Leading Teacher type work and towards getting a career in that pathway. (Emma)

Only one interviewee (Betty) was involved for the express purpose of developing *how to* skills for the delivery of Professional Development to others, because she 'wanted more on delivering PD [professional development] to other professionals'. The majority of interviewees were new to their leadership role and saw the program as a way of assisting and supporting them in their development.

Perceived value of the program: Most perceived the value of the program as that of learning through sharing with like-minded people in similar roles and that the knowledge they gained tended to reinforce that which they already knew. For some (5/12), the opportunity to speak to their peers was viewed as a rich experience and was high on their list of their perceived value; that was particularly so for those in their first year of a leadership role. Discussion with colleagues was seen as helpful in creating ideas and approaches for further development.

Well, I think it just gave me a whole new perspective on what professional learning in a school really is. I guess I thought of it before as going off to like a professional development event somewhere else and listening to a speaker and it just gave me a much broader picture of what professional learning can be in your school. It also gave me the opportunity to talk to lots of other people who have been doing that for a while in their school. (Anita)

The LPL program helped participants to think differently about how to support the professional learning of others. This is demonstrated by Kay, who saw value in the program in terms of not only the nature of professional learning itself; but what it is and how it is different from professional development. Half of the interviewees (6/12) had views similar to Kay:

… it made me plan a lot more carefully what I was going to present and how I was doing it and it made me think of a longer term project. I had a lot more forward planning going into the actual presentation and planning out step-by-step sequentially, what it was that I was going to do in terms of that professional action. (Kay)

A natural consequence of thinking about professional learning in the way these interviewees described it is highlighted by the way they thought about the need to

share their learning with others both formally and informally.

> I've reported to the School Council and my Principal about the professional learning program and shared it with colleagues who have entered leadership programs this year or intend to do it for next year. (Tom)

Perspectives on cases: For many of the interviewees (9/12) the value in the final product, the cases book, came from identifying with similar dilemmas and learning new and varied strategies for dealing with them: "I read some of the other cases and found it interesting that we all had the same problems. I gave one copy [of the book] to my Principal on his request, and he has said it has been fantastic to read. I enjoyed seeing my piece of writing in a book." Extending this view, Kay enthusiastically stated that the cases book was: "really useful for me, as a Principal, to read it because a lot of it centred on issues to do with leadership support in terms of professional development."

The cases book was a resource that interviewees valued as it validated the development of their own professional knowledge and offered a range of other experiences that helped to extend their understanding of professional learning beyond their own individual situation.

> Betty: [My case and the book itself] it was put beautifully really so I was quite happy.

Anita hints at an aspect of the cases book that was common for all participants. They shared the book with others as a resource and could see possibilities for its use, but even for those who had not used the book themselves, that personal lack of use did not appear to diminish their perceived value of case writing:

> … one of our current leading teachers who has gone into the Leading Professional Learning position, when she was applying for her position, I told her about it and gave it to her. I've certainly shared the cases with our new leader of professional learning. … I thought that it [case writing] was good [though]. … I felt important and part of a leadership program and then at the end when the time and energy was put into helping us write up the case … it gave us probably, a framework to structure our reflection. I enjoyed the case writing. (Tom)

Like Tom all of the interviewees were consistently of the view that case writing was a meaningful reflective process that helped them to clarify a range of issues in their practice. For Sally, case writing and the use of the cases offered her new perspectives on professional learning that had a major impact on her understanding of practice:

> I think it's a really strong tool. … If someone asks me a question, I would say, "Look, give me a minute" and I'd have a look back and see if someone had

been in a similar sort of situation where they were leading a meeting and they had 90% of their group that were tuned out and what strategies did they use to captivate their audience or what turned the meeting around that was the big moment … So I've actually used them that way which has been fabulous. … I must admit, when we all did it [wrote our own cases] it was really daunting and everyone found it a little bit hard …Our initial reaction was your typical "oh, this could be too hard and what am I going to do?" But once we all got writing, it was really valuable because it really did get you, not to just look at a situation at the surface level, but to actually go right behind it and ask what the other people were feeling. You have to look at both sides of why it was effective/why was it not effective? What was the moment where everything came together? And I think that was really critical. You obviously don't have a lot of time to do that sort of thing when you're a classroom teacher and when you're within a school with everything else. But to actually go to a course that really gets you to that, I think that's really valuable. (Sally)

In a similar vein, Natalie also described how the process of writing a case was important for developing a deeper understanding of practice:

The process of writing is a very useful one. It's only when we actually talk over something that's happened, an experience or an issue or a problem or we write about it, that you clarify a lot of issues in your own mind. There's a synergy that happens when you talk with people. The shared understandings are often much more powerful than if you just thought about it yourself, but the actual process of writing something down does something in the brain I think, it clarifies things, it helps you come to your own, well I call it an epiphany often. It's the self-discipline required I suppose, the process you go through is a very worthwhile one. (Natalie)

The data clearly demonstrates that all interviewees appreciated the opportunity to write a case as it created a space for them to reflect on their learning and offered some time out from the "busyness of teaching" (Loughran & Northfield, 1996); an essential element of professional learning.

I would love to do more writing of those cases … [and] have the opportunity to have that time to sit back and actually reflect on some of the things that have happened along the journey. (Sally)

The interviewees largely described their professional learning as occurring through communicating and sharing their experiences with their peers (8/12) and taking risks in their practice (5/12). In so doing, case writing was important. In terms of communication, case writing facilitated individuals' articulation and portrayal of their experiences and as a product was an obvious form of dissemination of those ideas to a wider audience. In terms of taking risks in their practice, the goal of developing a case to demonstrate their learning encouraged interviewees to push

the boundaries of their practice and to use those experiences as the focus for their case writing which led to better understanding and valuing of their professional learning.

> It [case writing] made me really think in depth of actually: What are the issues? What are the very fine details? When you think about it and start writing about it you go, "Oh, well perhaps that was an issue that I hadn't even looked at … Hadn't addressed and then [you are] able to write it down because writing it made it clearer. … I found it really enlightening. In fact I have it [the cases book] up there and every now and then when I've got five minutes, I read it. I think it's important because each teacher has different perspectives on the way they work and on the way they deal with issues and I think often you can pick up on ideas that they've done and they've dealt with and think "oh well, I'll try that". So it's been a very good learning curve for me. (Emma)

CONCLUSION

The shift in language from Professional Development (PD) to Professional Learning (PL) explained in the introduction of this chapter is an important touchstone for the research reported here. It has been well recognized that despite the best intentions, professional development does not always lead to professional learning. Fullan (2007) goes so far as to state that external approaches generally, are not "powerful enough, specific enough, or sustained enough" (p. 35) to lead to meaningful change, because they tend to be removed from teachers' real work, needs and real concerns. The use of case writing is an approach to supporting professional learning based on creating a collaborative trusting environment through which reflective inquiry into one's own practice invites engagement with, and responses to, the problems and dilemmas of practice (Lieberman & Wood, 2002). Therefore, the approach to case writing outlined in this chapter can be seen as one way of recognizing and responding to teachers' needs, in order to create conditions conducive to genuine professional learning.

Wei et al. (2009) in their recent and extensive review of Professional Learning in the U.S. drew attention to the fact that:

> There is increasing consensus that the most effective forms of professional development are those that are directly related to teachers' instructional practice, intensive and sustained, integrated with school-reform efforts, and that actively engage teachers in collaborative professional communities. Teachers in many high-achieving nations [e.g., Finland] have these kinds of opportunities on a regular basis, as considerable time is built into their work week for collegial planning and learning, lesson study, and peer observations. (p. 39)

The data in this chapter demonstrates how important it is to address teachers' personal professional needs and expectations by embedding their learning in their

101

professional and personal contexts, issues and dilemmas. As the results of this study illustrate, this approach purposefully extended and developed participants' professional learning by making time and space available for them to grapple with and articulate their professional learning in ways that validated them as 'knowledge producers'.

> I loved the case writing. It was a very creative exercise and the result was fantastic; the book is great! I'm so proud of what I wrote. How often do you make yourself sit down and write something like that? You just don't get the time and I really appreciated making – having someone make me do that. I thought the venue was lovely and getting away from school and doing that. … The most fantastic thing; the stimulating thing, is to meet one's peers and make friends and be able to have professional conversations. The time to have those professional conversations and when they're not people from your own school, there's a certain freedom in saying things perhaps, that you don't always get, yeah I guess there's an opportunity to get away from the inhibitions one has when one's too close to people I guess. (Natalie)

REFERENCES

Berry, A., Clemans, A., & Kostogriz, A. (Eds.). (2007). *Dimensions of professional learning: Identities, professionalism and practice*. Dordrecht: Sense Publishers.

DEECD (2005). Professional learning in effective schools: The seven principles of highly effective professional learning Retrieved 11 March, 2009, from http://www.eduweb.vic.gov.au/edulibrary/public/teachlearn/teacher/ProfLearningInEffectiveSchools.pdf

DEECD (2006). Learning to Lead Effective Schools Retrieved 14 December 2007, from http://www.education.vic.gov.au/proflearning/schoolleadership/default.htm

Fullan, M. (2007). Change the terms for teacher learning. *Journal of Staff Development,, 28*(3), 35–36.

Hayes, D., Mills, M., Christie, P., & Lingard, B. (2006). *Teachers and schooling making a difference*. Sydney: Allen and Unwin.

Hoban, G. F. (2002). *Teacher learning for educational change: A systems thinking approach*. Buckingham: Open University Press.

Lieberrman, A., & Wood, D. (2002). From network learning to classroom teaching. *Journal of Educational Chang,3*, 315–337.

Loughran, J. J., & Northfield, J. R. (1996). *Opening the classroom door: Teacher, researcher, learner*. London: Falmer Press.

Lundeberg, M. (1999). Discovering teaching and learning through cases. In M. A. Lundeberg, B. B. Levin & H. Harrington (Eds.), *Who learns what from cases and how: The research base for teaching and learning with cases*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Mockler, N. (2005). Trans/forming teachers: New professional learning and transformative teacher professionalism. *Journal of In-service Education, 31*(4), 733–746.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books.

Shulman, J. H. (1992). *Case methods in teacher education*. New York: Teachers College Press.

Wei, R. C., Darling-Hammond, L., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher develompent in the U.S. and abroad*. Dallas, TX: National Staff Development Council.

FIVE STEPS FORWARD −
DEVELOPING PEDAGOGICAL EXPERTISE DURING
TEACHER EDUCATION

Helena Koskinen

INTRODUCTION

Developing the teachers' pedagogical studies[i] at The University of Lapland in Finland, has been based on the students' evaluation and feedback on the study program over the course of several years (2004-2007; N=113). According to students' interviews, interdisciplinarity is a remarkable challenge to the construction of teacher identity, and it has a strong effect regarding expectations for the studies under discussion. The theoretical background of a new mode, as a part of the studies, known as the "Five steps forward pathway", to support the reflection process during pedagogical studies, is discussed in this article; as well the main findings of the study explore students' and teachers' experiences closely after they have used the mode for the first time. In consequence, it has been found that there are needs to strengthen the development process of teacher identity, to find ways to increase students' awareness of their prior learning outcomes in the context of teaching, learning and studying and to increase interaction and better integration of single modules of the studies. Students study to become teachers after graduation or as a minor subject in a Master's degree on different fields of sciences. Non-degree pedagogical studies are continuing studies for those who are interested in becoming teachers for different schools or who want to work as an expert in different sectors where pedagogical know-how is demanded or beneficial. At the University of Lapland the focus in these studies is on vocational education and adult education. To increase the quality of the studies, students are seen as critical partners in the development of the studies and the metaphor of steps taken along the learning pathway invites designers and educators to join the students in shared learning.

When starting the studies, many of the students already have experiences in teaching. However, there are some who haven't thought teacher training actual or significant during previous studies or who had no pedagogical training combined with their major subject at universities. Afterwards, they worked as part-time or supply teachers, and found the work interesting and challenging. In other words, they managed to work as a teacher based on the experiences of personal schooling

and studying. In these cases, quite obviously pedagogical thinking remains on the action level; such a teacher makes up his/her mind and solves problems in each situation specifically (Goodson, 2001; Kansanen, 2000). Some others did not have any teaching experiences before studies but they all had some working life experiences.

Between times there was the Five Years – Two Degrees project[ii] run at the Finnish universities to support the implementation of the Bologna process, and that gave an excellent opportunity to design and make use of the mode as a pilot of this project. Great support was given for development by assessing the process and arranging discussions between partners working on different topics to improve learning at Finnish universities.

There is an aim to deepen the debate about the role of reflective practice in teacher education and collective reflection among teacher students and teacher educators to build up possible models to continue professional development after training at work. These sorts of effective actions are important especially in short trainings. Teachers' pedagogical studies at the University of Lapland are planned to be finished during three semesters and are possible as part-time studies while working.

REFLECTING ON BECOMING A TEACHER

Over the years there have been many theoretical approaches presented to define teacher identity or teacher expertise. The development of teacher identity is seen as not being linear but an on-going, dynamic process, following individual routes and lasting life long, and as such, it requires the aspiring teacher to engage and to take responsibility for his/her own development (Beijaard, Verloop & Vermunt, 2000). It is a slow process, a process of progressive problem solving, rethinking and redefining and being awarded with the elements of a professional identity (Bogler & Somech, 2004; Huberman, 1995; Postareff, 2007). Accordingly, the question arises: Is it growth and/or development? Growth is seen as an increase in the quantity of knowledge and skills and development as an increase in capability to change one's view (Beairsto, 1996). It is worthwhile to ask, what role does teacher training play in this progress?

A teacher needs theoretical and practical knowledge and the capacity to adapt his/her expertise to different situations both individually and collectively, and the capability to justify his/her actions. Expertise as personal experience is based on the evaluation of current know-how and skills and readiness to act and to find solutions (pedagogical in this case) according to current goals (Isopahkala – Bouret, 2005; Ramsden, 2003). In some models the focus is on learning in practice and on emphasising experiential learning. Kolb's (1984) well-known learning model emphasises the role of reflective thinking and the conceptualization of personal experiences. This has been a leading way of rethinking for development of the five steps mode under discussion. There are two important and interwoven factors in teacher development: the professional self and subjective educational theory

(Kelchtermans & Ballet, 2002). Development of both starts in teacher training but the confrontation comes true in practice. During the training students get teaching experiences under supervised practice. The best experiences are built up in the real teaching situations with full responsibility.

Dreyfus and Dreyfus (1986) model the progression to expertise as a process from novice to expert through changing on five levels. There are changes in movement from relying on abstract principles to using concrete experiences as paradigms and change in the view of perception of situations and as a change from observer to involved performer.

Bogler (2004) talks about empowered teachers; teachers who are particularly willing to solve problems and eager to improve the students' motivation and learning strategies. In adult education this is at the center, especially when students want to study a new profession or they do not know what to study and how to cope with life. For the empowered teacher, teacherhood, i.e., teacher identity is personal experience of and awareness regarding his/her own profession describing as well the way he/she feels about teaching. Also it is a phenomenal link to others with similar education and training. When developing the pedagogical studies, teacherhood has been seen as an entity including subject knowledge, pedagogical know-how, skills in collaboration and interaction and skills demanded in the working life such as being familiar with administration and student welfare and teacher's rights and duties.

Pedagogical know-how should be developed as an integrated part of each student's personal, interdisciplinary expertise. The training is not long, three semesters, and the process has to be kept intensive and fluent. Principles of cumulative and blended learning (Graham, 2006; Macdonald, 2006; Stubbs, Martin & Endlar, 2006; Singh, 2003; Wenger, 1998) are taken into practice in the teachers' pedagogical studies. Teacherhood is under development continuously in education contexts and in society and personally through both formal and informal learning activities. Non-formal learning and learning in interaction are in process all during an individual's teaching practices enriching the professional capability (Chappell & Johnston, 2003; Isopahkala-Bouret, 2005). The studies, described here, were designed to be an integrated unity of on-campus contact periods, off-campus e-learning and individual work. One part of the studies is learning by doing in field schools in mentored teaching practice. Practice is based on the students´ prior learning and know-how and supported by collective reflection and self-reflection. Figure 1 below summarises the blend of the studies.
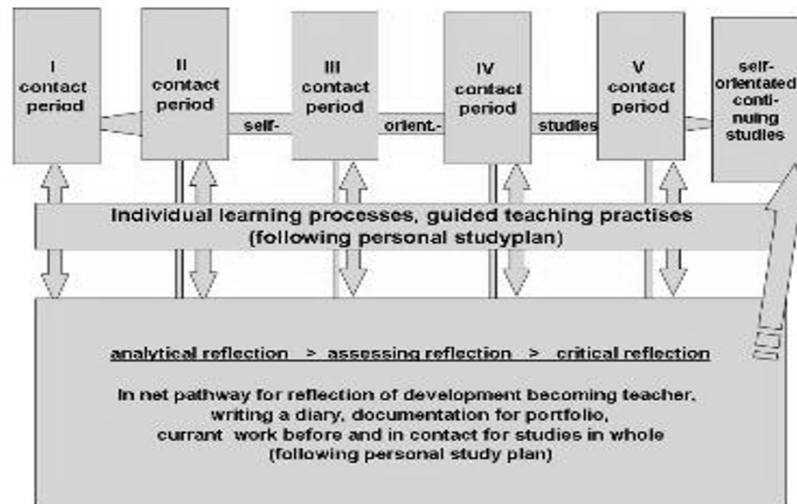
Figure 1. Blended learning cumulating in collaboration and individually.

In reflection, learners become conscious of assumptions, beliefs and perceptions and consciously compare them to his/her own expectations. Reflective thinking assumes the main role in transformative learning theory (Mezirow, 1991), and is what makes it possible to learn to change one's view (Brookfield, 1995; Postareff, 2007). The development of awareness of reflective practice and pedagogical thinking are connected to definitions of reflective practice and learning in collaboration and in critical partnership (Burn et al., 2003; Kansanen, 2000; Parsons & Stephenson, 2005). Reflective practice is understanding based on metacognitions being awarded and able to monitor the development one's of learning and to put its application into practice (Gusky, 2000; Parsons & Stephenson, 2005). Professional development starts in education and continues on into the working life (Beijaard et al. 2004; Engeström, 2001; Postareff, 2007). Shared understanding, i.e., peer dialogue makes professional development explicit, both in education and in working practices (Chappell & Johnston, 2003; Järvinen & Poikela, 2001; Kynäslahti et al. 2008).

It is difficult to determine when the development of teacher identity has started in each case. As members of the learning society, we all have such a variation of experiences of learning situations and of being influenced by numerous teachers. Already during school times, those who feel willing to take over a teaching role start to develop a teacher identity in their minds, perhaps subconsciously. In such cases, pedagogical thinking remains on the action level and reaches neither the first nor second thinking level (Biggs, 1996; Kansanen et al., 2000). Adult learners are seen as self-oriented and able to set their individual goals to act and to learn. According to personal experiences in teaching, the student may think he/she knows enough about pedagogy, so the formal certification is the main purpose of training.

In fact, every year, at the beginning of the studies under discussion, one or two of the students point this out. If teacher identity is seen as the continuing development of expertise, these students can be a great challenge for educators.

Being aware of the consideration of prior learning and experiences, we designers and educators in these studies talk and write about development to become a teacher (those who do not have teaching experiences) and about development as a teacher (those who already have teaching experiences accumulated over many years) to give a signal of respecting all students equally and to point out that teacher identity is an ongoing process. Also an adult learner joining the studies may already have an identity of some other profession such as nursing or engineering according to his/her former education and work experiences. A change from being a nurse to a teacher of nursing and health care involves questions of the reconstruction of professional identity.

RESEARCH QUESTIONS AND DATA

In this article the focus is on the following research questions: Did the web-based mode five-steps-forward-pathway help students to understand and strengthen reflection on professional development and teacher identity and to integrate pedagogical know-how with prior studies? And further, what are the main challenges for further development of studies?

The data was collected during the academic year 2008-2009. There were 40 students in training during the time. Students were from different faculties in the University of Lapland: education, law, art and design, tourism and business and social sciences. Some of the students had already finished a master's degree at different universities. Students as well as four teacher educators, who were involved at the beginning of training to run orientation classes, reflected their experiences. All 40 students started the program and 30 (n=30) students finished the whole pathway and worked out portfolios for this study. Data was collected from students by questionnaires: one at the beginning and another at the end of training as a part of steps 1, 4 and 5. To form and deliver questionnaires, the Webropol survey software online solution was used. Both questionnaires consisted of a section of semi-structured questions and a section of open questions. As a part of the first questionnaire, students assessed their expectations about the studies and their individual strengths; also what were their personal challenges in developing teacher identity and individual expertise. The second questionnaire was to assess studying and learning experiences, as well as the role of the mode in reflective practice. At the end of the studies, students assessed and reflected in portfolios on their current expertise and the challenges for the future learning and development.

At the end of the orientation period the teacher educators' documentation regarding their experiences of orientation to take in use the mode was collected. In order to get a better and fuller understanding of the action, a multimethod approach was required. Data collection, using both quantitative and qualitative methods, produces more information on the topics. When a holistic view of educational outcomes

is sought, methodological triangulation is suitable. The resulting correspondence of different study results of the same phenomena enables the researcher to be more confident about the findings (Cohen & Manion, 2000).

All the evaluation texts were analyzed applying content analysis, categorizing expectations and strengths according to prior learning and to understanding on teacher identity. The dominating facts are explored in this article.

FIVE TASKS TO FACE AND TO WORK THROUGH

Defined pedagogical aims for the development of the mode − five steps forward pathway − were to strengthen and support the following areas:
– Reflection of the learning process throughout the studies.
– Reflection of know-how and experiences; and reflection of integration and conceptualization.
– Construction and assessment of interdisciplinary expertise and teacher identity as a part of it.
– Defining of the student's subjective educational theory.
– Interaction and mentoring between different partners during the studies.

Reflection on learning was supported by assignments and assessments done both individually and collectively. E-learning space was used to maximize collegial reflection. Students came from a wide geographical area and many of them were part-time students. Supported on-line sharing and gathering (synchronous or asynchronous) made collaborative work possible and maintained activity on a high level, reducing the need for frequent face-to-face contact. To fulfill all this, a diary was taken in use in an e-learning environment to prepare and collect material for the portfolio assessment as a final of studies. In this context, the portfolio is seen as an assessment document showing what you know, how do you understand the problems and what kind of abilities you have (Niikko 2001; van der Schaaf, Stokking & Verloop, 2008). The learning outcomes are addressed according to the frame of The European Qualifications Framework (EQF). These standards consist of knowledge as facts, principles, theories and practices related to teaching, learning, studying and schooling; skills as an ability to apply knowledge in teaching practices and use know-how to complete tasks and solve problems; and skills also as social and communicational abilities; and competence as a proven ability to put all these into practice at work and in personal development (Anderson et al., 2001; The European Qualifications Framework for lifelong learning, 2008). The portfolio is to provide an individual narrative concerning the learning process and expertise.

According to former students' feedback, they often saw assignments, which have been planned to guide and assess their learning, as separate tasks and so the assignments have not always been effective and cumulatively supportive in learning and reflection. They also saw that there was not always enough mentoring nor was it met equally. However, the educators have been deeply aware about different learning strategies when mentoring the students. The chosen learning strategy has an affect on attitudes and thinking about learning in quality and quantity. To gather

and to process knowledge, a learning strategy will guide a person to operate and to choose the kind of processes he/she feels to be pleasant and safe. Unsuccessful reflection may be caused by surface-oriented learning. In such cases, the student concentrates on external facts and the activity of discussing problems of learning remains incomplete. The approach is not deep enough and awareness is shallow. In contrast, deep-oriented learning helps to understand better the matters and to see relations among wider connections in expertise and may confirm one's pedagogical thinking (Marton & Säljö, 1976; Sadler & Evans, 2006). The five-steps-forward-pathway was planned to answer these challenges.

All students have faced the same tasks following his/her personal progress and personal study plan. The process went on starting with analytical reflection, going through assessing reflection and finishing with critical reflection and generating a view of the future. The process included assessing personal strengths and accepting new challenges in order to be able to continue development of teacher identity after training and to take care of one's well-being (Gusky, 2000; Levander, 2002). Partners in this process were peer students, mentor teachers and students/pupils who had met during teaching practice as well as all educators involved in studies. All experiences, including any attendant emotions and all received feedback were to be discussed thoroughly (Argyris & Schön, 1978; Jäntti, 2008; Levander, 2002; Carnell, 2000). During the studies, each student was supposed to do construction work on his/her personal educational theory considering especially the elements of pedagogical thinking and decision making.

The first step on the five-steps-forward-pathway, was to assess prior learning and experiences (APEL, 2005), current personal strengths and weaknesses and to concentrate to find out the theme of personal orientation by which a student could target his/her personal aims in studies. Learning at work was also a focus of this analysis. Based on this, students defined their personal aims and expectations on the studies. All this was to support analytical reflection.

To support the assessing reflection, there were two tasks (steps 2 and 3) to work out. The second step was to reflect the teaching process collectively based on experiences in teaching practice, i.e., collaborative learning in peer-to-peer reflection. During the learning at work period students joined in asynchronous on-line discussions with peer students on the teacher's pedagogical know-how in general. The third step required the student to evaluate his/her personal pedagogical know-how. Each student faced the task when finishing the practice in the field school. There were different elements concerning pedagogy and teacher identity to evaluate and everybody could add his/her own element in comparison to personal know-how, feelings and experiences, all integrated with the theories. The aim was to approach and strengthen theoretical understanding and pedagogical thinking.

The fourth and fifth steps were to engage in critical reflection; to evaluate (step 4) learning processes and to make learning visible; to assess the training in whole; and to complete the portfolio (step 5).

At the same time, the learning space was used as a demonstration of e-learning. Throughout the studies, students were involved in assessing the learning space and to see it from the pedagogical point of view and to discuss it as becoming teachers

or to compare it to previous e-learning and teaching experiences. This challenged the designers and the educators of the studies to make how they operated visible.

<div align="center">STEPS TAKEN – THE RESULTS</div>

How to bind together teacher identity − expectations on studies

As the first step, each student assessed and defined individual challenges for development of teacher identity as a part of individual expertise based on prior learning and personal strengths and weaknesses. On this, the students listed their aims and expectations regarding the studies. As one of the students put it; "how to bind together my teacher identity" – that came out as a dominating question expressed in different words.

Based on these findings it was possible to form two categories out of aims and expectations: understanding teacher identity and didactics in practice. In both categories, the dominating question regarded whether there was a lack of theoretical knowledge and of adopting of knowledge to practice. Trust and belief in personal ability came out as a most dominating issue among the weaknesses and the need to strengthen these as an aim.

Concerning the growth and development of teacher identity, the following were mentioned: a need for better knowing in theories and better metacognitive understanding and the question of the teacher's authority. Also the questions of responsibility and autonomy in teachers' work were mentioned. Students pointed out many didactical facts to learn and to improve, such as teaching methods, skills to meet different learners and understanding learning styles and strategies and evaluation of learning. The dominating strengths were connected to the fields of sciences of subject specialism and know-how in social and communication skills. Between students, there were not significant differences in expectations depending on former teaching experiences.

Binding and bridging

When finishing the studies, each student evaluated the five-steps-forward-pathway as a part of the studies. Each was asked if the five tasks supported reflection on teacher identity and if their expectations had become realised and how did they see pedagogical know-how as having been strengthened as a part of their personal expertise.

One half of the students (57.7%) assessed that their expectations and aims for studies had been fulfilled well and the rest (42.3%) saw the results as excellent. Half of the students (50 %) assessed that the studies had strengthened the development of their teacher identity and expertise significantly and almost the rest (46.2 %) said that they were able to see effects but the process is still strongly ongoing. Some (3.8%) pointed out that their former expertise had been confirmed greatly.

None of the students saw training just as one way to get the certificate.

All students said that the five-step tasks helped and supported reflection either significantly (33.3%) or greatly (66.7%). None of them had an opinion that the tasks were just like an assignment among the others. The diary for the portfolio was found to be useful by half of the students (58.3%). A third of the students thought that the diary could have been replaced by some other tasks. One student found the process useless. One half (50.0%) thought that they had been mentored when needed and almost the other half (41.7%) had received enough feedback and mentoring and were satisfied with it. One student said that she could have used more individual support during the studies.

When analyzing the self-evaluation texts in portfolios, it was possible to group development in two: firstly by better understanding of theories and practices in general and integrating theories in teaching practices and secondly, by better personal trust and belief in one's ability to be a teacher. As individual learning outcomes concerning better understanding of theories and practices came out, that the understanding on the pedagogical approaches to the subject field of science was more open after studies, and the assessment and recognition of prior learning and expertise was advanced.

> My pedagogical know-how has advanced enormously during these teacher's pedagogical studies. A whole new section is added to my subject expertise… Situation-specific ability to act and confidence have developed alongside substance know-how. … I estimate that perceiving myself as an expert has come true very well. This is influenced not only by the reflective nature of the pedagogical studies but also by my professional identity which has strengthened through my current working experiences.

The awareness of the tacit knowledge grew as a part of the individual know-how. Trust and belief and also ethics integrated in teacher's work were learned through the experiences caused by increasing criticism in reflection. Pedagogical thinking and creativity were advanced.

> From the studies, I have gained a lot of information on how to develop my pedagogical thinking and my own actions. These studies gave for my work an important pedagogic knowledge base, which I commit myself to developing and improving as much as I can. Acquiring an inquiry-oriented approach towards work, an inquisitive and open attitude towards learning and developing metacognitive skills gave me reason for self-reflection as a learner during the studies, as well as when acting as a teacher. It is also helpful to notice that self-criticism towards the methods I previously used has increased.

Also the ability to empower learners, i.e., students/pupils and him/herself, was found stronger. Awareness of the ethics of the teaching profession and trust in personal know-how and the capacity to change one's views were based on the development of reflective thinking.

In teaching situations, I know how to interpret my actions and I see the influences on learners. I know how to change my teaching methods when needed, as well as interpret mine and the students' behavior. Now I am aware of the concept of teacherhood and I know how to consider my actions on a meta-level.

Almost without noticing, I have also developed my teacher identity – a strong vision of what kind of a teacher I wish to be and a strong notion of what I consider as good teaching.

Many issues were mentioned both as learning outcomes and as challenges for further development. These issues varied between individuals. The following dominating challenges were mentioned: how to cope and update new teaching methods and the increasing quantity of knowledge. To rethink and renew personal educational theory was seen as being challenging. Also the better understanding of learning and teaching in multicultural contexts was seen as an actual challenge of teacher's work. Teaching learners with special needs was mentioned too. There was consideration and rethinking about how to find the best pedagogical solutions according to current goals when teaching subject-knowledge concerning individual subject specialism.

The five steps' reflection and documentation was found to be binding and bridging. Having an understanding of the integration of theories and practices on the field of individual specialism related to the theories and practices of education was found to be binding. The portfolio did bridge the development of the teacher identity into the future and lifelong learning.

Educators as partners of interactive learning

According to teachers' observation of the experiences during the first on-campus period, matters came out which did help students in their learning and studying and facts were found which were problematic. A dominating fact according to teacher educators' experiences was the question of the different learning strategies of the students. This is an important question to take into account when planning forward the mode and the implementation of the mentoring. Students' alternative engagement to on-line learning and different levels in ICT-skills did benefit or challenge learning. The shared common language, i.e., knowing and understanding the concepts of education and pedagogy did vary and were found to be a problem in orientation. Understanding of the cumulative process of learning step by step was a question of being able to accept a new way to study, being able to give up the routines and to minimise achievement orientated approach to learning. Some students found it difficult to accept that all assignments and materials were not available to be seen at once or free to browse. They had to wait until getting to a certain point in the studies to be allowed to open the next object. When the design logic and the visualisation of learning space were realised, a gate opened

to understand the cumulative nature of the studies, which acted to motivate the learners.

If the student thought, that the best way to gain grades was to start the studies by listening to a good lecture instead of assessing prior learning, experiences and learning strategies, he/she found confusing to start studies by reflection. Through discussions with the students, educators came to understand that to evaluate and to value one's know-how and to find previous studies as a part of interdisciplinary expertise was not easy. However, in the end, this approach was found awarding and motivating.

The results have already been used for further development of the studies − specifically, for curriculum development and implementation. One of the main challenges that remains is how to increase the flexibility of the studies. There are personal study plans with personal aims and different traditions of different fields of sciences to take into account. The learning pathway has to be built up out of elements which make it possible for each student to process them from their own point of view according to personal goals and special interests.

For designers and teacher educators, this action provided an experience in how learning takes place in active interaction between students and educators. Both facilitate each others' learning. Best practices in giving and receiving feedback and mentoring are under development in the near future according to the findings of the study.

DISCUSSION

To advance the quality of the teachers' pedagogical studies and to improve the methods of teacher educators in short trainings like those under discussion, the development work of the five-steps-forward-pathway has been seen as relevant. The findings of the study strengthen the idea that a flexible, explicit method is useful to give support to the self-evaluation and reflection of teacher identity. A web-based learning environment was found being practical in the cases under consideration. Progressive reflection, step-by-step, widens and deepens understanding of individual development. To reflect a teacher student needs to have enough time to rethink and to be able to receive support. The students found peer-to-peer mentoring helpful. Teachers' experiences correspond with the students' experiences of using the five-steps-forward-pathway. The metaphor integrated into the five steps forward pathway was a good start to help students to realise the whole instead of single elements and made visible how teacher identity is constructed: what are the needed elements and how to wrap up everything together to attain the best possible learning outcomes.

When it comes to designing curriculum for the sort of teacher trainings discussed here, a special challenge is interdisciplinarity. Students see interdisciplinary expertise as a blend of knowledge and skills of the fields of subject sciences and education. There are one or more traditions and concepts of the different fields of sciences to integrate with understanding into the science of education. For the

further development of the curriculum for teachers' pedagogical training as continuing studies, the focus needs to be on flexibility. Assignments of reflection and the rest of practical work have to be designed and instructed so that it becomes more and more possible to apply them with various individual and situation specific needs. The fulfilling of learners' subjective goals and expectations will serve to enhance motivation and feed reflection. Sharing know-how in interaction gives a possibility to explain and justify one's own point of view explicitly and to learn from critical reflection. The findings indicate that a reflecting practice based on mentored teaching practice turned out to be a most effective process in the construction and understanding of teacher identity. Students widened their thinking explicitly on topics like creativity, empowerment and ethics integrated in teacher identity which were new compared to their expectations before training.

The study strengthened the notion that the construction of teacher identity is a personal, ongoing process and teacher education gives a good start for the process and hopefully good tools to continue the progress after training at work. All this became apparent when the students defined the challenges for their further development. After training the expressions were more defined and conceptualised. It is a sign of development to change from being an observer to an involved actor.

As to students' expectations for training, there were no significant differences between those who had teaching experiences before studies compared with those without any teaching experiences. This proves that it is not possible to construct a teacher's identity simply on experiences. Experiences need to be reflected on and supported by theories. Reflection is the way to become conscious of the progress. The findings prove that reflective thinking and conceptualization of personal experiences play a main role in students' self-evaluations.

The study findings increase and deepen the program designers' understanding of the challenges for designing short-term teacher training for adult students who already have a developed professional identity based on prior education and working experiences. Given the qualitative approach to the problem in the study, it was significant that the researcher was able to get close to the participants in order to understand the realities of the participants' everyday life. In this study the researcher was one of the designers and educators as well.

There are local and even wider challenges to discuss as regards the teacher qualification in the case when the teacher is teaching on different levels of schools: from comprehensive school to vocational school and to higher education and even in adult education classes. In peripheries like Finnish Lapland, because of demographic reasons, teachers may need to teach learners on different levels during the same time period, which requires a great deal of self-reflection, continuing training and creativity as well as the capability to change views and to adapt the know-how to various situations and to discover new strategic approaches.

REFERENCES

Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, P. R., Pintrich, J., & Wittrock, M. C. (Eds.), (2001). *A Taxonomy for learning, teaching & assessing: A revision of Bloom's taxonomy of educational objectives*. USA: Addison Wesley Longman. Inc.

APEL Working Group, (2005). *Recognition of prior learning*. Scotland: University of Paisle.

Argyris, C., & Schön, D. (1978). *Organizational learning*. London: Addison-Wesley.

Beairsto, J. A. B. (1996). Professional growth and development: What is it and how do we know if it's working? In P. Ruohotie, & P. Grimmett (Eds.), *Professional growth and development: Directions, delivery and dilemmas* (pp. 91–111). Tampere: Career Development Finland.

Beijaard, D., Verloop, N., & Vermunt, J. D. (2000). Teachers' perceptions of professional identity. *Teaching and Teacher Education,* 16(7), 749–764.

Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education,* 32, 347–504.

Bogler, R., & Somech, A. (2004). Influence of teacher empowerment on teachers' organizational commitment, professional commitment and organizational citizenship behaviour in schools. *Teaching and Teacher Education,* 20(3), 277–289.

Brookfield, S. D. (1995). *Becoming a critically reflective teacher*. San Francisco: Jossey-Bass.

Burn, K., Hagger, H., Mutton, T., & Everton, T. (2003). The complex development of student teachers' thinking. *Teachers and Teaching: Theory and Practice*, 9(4), 309–331.

Carrell, C., Lodge, C., Wagner, P., Watkins, C., & Whalley, C. (2000). Learning about learning: Resources for supporting effective learning. London: Routledge.

Chappell, C., & Johnston, R. (2003). *Changing work: Changing roles for vocational education and training teachers and trainers*. South Australia: National Centre for Vocational Education Research.

Cohen, L., Manion, L., & Morrison, K. (2000). *Research methods in education* (5th ed.). London: Routledge Falmer.

Dreyfus, H. L., & Dreyfus, S. E. (1986). *Mind over machine. The power of human intuition and expertise in the era of the computer.* Oxford: Bacil Blackwell.

Engeström, Y. (2001). Expansive learning at work: Toward an activity theory of reconceptualization. *Journal of Education and Work*, 14(1), 133–156.

European Commission, (2003). *Validation of non-formal and informal learning − Contribution of the Commission Expert Group*. Brussels.

Goodson, I. F. (2003). *Professional knowledge and professional lives: Studies in education and change*. Maidenhead: Open University Press.

Graham, C. R. (2006). Blended learning systems: Definition, current trends and future directions. In C. J. Bonk, & C. R. Graham (Eds.), *Handbook of blended learning (pp.3–21)*. San Francisco: Pfeiffer.

Green paper on Teacher Education in Europe. (2000). In F. Buchberger, B. P. Campos, D. Kallos, & J. Stephenson. (Eds.), *Thematic network on teacher education in Europe*. Umeå Universitet. Sweden.

Guskey, T. R. (2000). *Evaluating professional development*. Thousand Oaks, CA: Corwin Press.

Huberman, M. (1995). Professional careers and professional development. In T. R. Guskey, & M. Huberman. *Professional development in education. New paradigms and practices* (pp. 193–224). New York: Teachers College Press, Columbia University.

Isopahkala–Bouret, U. (2005). *Joy and struggle for renewal: Narrative inquiry into expertise in job transitions*. Helsinki: University of Helsinki. Finland.

Järvinen, A., & Poikela, E. (2001). Modelling reflective and contextual learning at work. *Journal of Workplace Learning*, 13, 282–290.

Jäntti, J. (2008). *Aiemmin hankitun osaamisen tunnistamisen ja tunnustamisen käytännöt Kuopion yliopistossa. [Recognition of prior learning. Practices in the University of Kuopio]*. Kuopio: University of Kuopio. Finland.

Kansanen, P., Tirri, K., Meri, M., Krokfors, L., Husu, J., & Jyrhämä, R. (2000). Teachers' pedagogical thinking: Theoretical landscapes, practical challenges. Peter Lang Publishing: *American University Studies* / Series XIV. Education: 47.

Kelchtermans, G., & Ballet, K. (2002). The micropolitics of teacher induction. A narrative-biographical study on teacher socialization. *Teaching and Teacher Education, 18*(1), 105–120.

Kolb, D. A. (1984). *Experiential learning. Experience as a source of learning and development.* Englewood Cliffs: Prentice Hall.

Kynäslahti, H., Kansanen, P., Toom, A., Krokfors, L., Jyrhämä, R., & Maaranen, K. (2008). Multimode teacher education. *Didacta Varia*, 13(2), 13–46.

Levander, L. (2002). Reflektio yliopisto-opettajan työssä. [Reflecting in university teacher's work]. In S. Lindholm-Ylänne, & A. Nevgi (Eds.), *Yliopisto- ja korkeakouluopettajan käsikirja. [Handbook of university and higher education teacher]*. Helsinki: WSOY. Finland.

Macdonald, J. (2006). *Blended learning and online tutoring: A good practice guide*. Aldershot: Gower. UK.

Marton, F., & Säljö, R. (1976). On qualitative differences in learning, I: Outcome and process. *British Journal of Educational Psychology*, 46, 4–11.

Mezirow, J. (1991). *Transformative dimensions of adult learning*. San Francisco: Jossey-Bass.

Niikko, A. (2001). *Portfolio oppimisen avartajana. [Portfolio as broadener of learning]*. Helsinki, Finland: Tammi.

Parsons, M., & Stephenson, M. (2005). Developing reflective practice in student teachers: Collaboration and critical partnership. *Teachers and Teaching: Theory and Practice*, 11(1), 95–116.

Ramsden, P. (2003). *Learning to teach in higher education* (2nd.ed.). New York: Routledge.

Sadler-Smith, E., & Evans, C. (2006). Learning styles in education and training. *Education + Training,* 48(2/3), 77–83.

Singh, H. (2003). Building effective blended learning programs. *Educational Technology*, 43(6), 51–54.

Stubbs, M., Martin, I., & Endlar, L. (2006). The structuration of blended learning: Putting holistic design principles into practice. *British Journal of Educational Technology,* 37, 163–175.

Van Der Schaaf, M., Stokking, K. M., & Verloop, N. (2008). Teacher beliefs and teacher behaviour in portfolio assessment. *Teaching and Teacher Education,* 24(7), 1691–1704.

The European qualifications framework (EQF). (2008). *Official Journal of the European Union*. European Commission. Office for Official Publications for European Communities. Belgium.

Wenger, E. (1998). *Communities of practice. Learning, meaning and identity*. Cambridge University Press.

NOTES

[i] Covernment Decree on University Degrees in Finland (794/2004) address "teachers' pedagogical studies, which are didactically oriented studies in education science comprising guided teaching practice and in which the student can specialise in basic education, upper secondary education, vocational education and training or adult education". http://www.finlex.fi/en/.

[ii] The W5W2 project (2007–2009) supports the implementation of the Bologna process in the Finnish Universities. The W5W2 project concentrates on cumulative learning. Knowledge should accumulate in the long-term memory during the studies. That is how the competencies are created. Methods for assessing learning will also be developed, and the implementation of the Bologna process from the perspective of curriculum design and student-centred study counselling will be evaluated. Pilot projects according to the themes are also an essential part of the W5W2 project.

CHAPTER 9

TAKING METACOGNITION A STEP FURTHER: TEACHERS SHARING PEDAGOGICAL PURPOSES

Ian Mitchell and Judie Mitchell

BACKGROUND

In the Project for Enhancing Effective Learning (PEEL) teachers have been working at promoting metacognition for 25 years in a collaborative action research project. A group of PEEL teachers has recently taken metacognition a step further by developing new ways of making explicit sense of teaching and learning. They have systematically built, with their students, a shared language for learning and regularly share their pedagogical purposes with their students. In this paper we outline four kinds of knowledge that we believe are necessary for enhanced metacognition.

> Whilst practice and enterprise is outstripping the pace of research, there is evidence that the key themes which form the necessary conditions for building learning power in classrooms include the quality of the relationships between teachers and learners, the quality of dialogue in which listening to the 'other' is central to questioning and debate, the development of a locally owned language for naming these processes, student choice and voice, and resequencing the content of the curriculum, which involves 'problematizing' and 'contextualizing' the content so as to create challenge and meaningfulness.' (Deakin and Crick et al, 2002)

Much has been written about metacognition and the importance of students knowing about their own learning, and becoming life-long, independent learners. Most schools in Victoria (Australia) have charter documents which list amongst their priorities, the importance of higher order thinking, metacognition and the so-called 'thinking curriculum'. However, study after study records that teachers find it hard to change their practice in ways which reflect new research. (Cornford, 2002; Cuban, 2004; Deakin, Crick & Wilson, 2005; Pedder, 2006; Quicke & Winter, 1994; Waeytens, 1997).

Most of the literature in the area of metacognition deals with the ideas on a theoretical level, and there is little that documents how these ideals are being played out in real classrooms. Wilson (2000) notes that most of the research that is available has been conducted under optimal learning conditions. 'Problems of embedding

the approach (teaching thinking skills) into everyday classroom practice, based upon what the average teacher can achieve rather than the expert practitioner working in good conditions with well-motivated pupils, remains to be demonstrated.'

Many teachers and schools have taken various learning theories and tried to implement them in classrooms. Theories such as Gardner's Multiple Intelligences and Costa's Habits of Mind are popular in Australia. How effective these implementations are is yet to be reported, though Cuban (2004, p. 140) reports that Gardner's theory of Multiple Intelligences does not actually filter down effectively into everyday classroom practice, at least in the United States. A survey by Pedder (2006, p. 198) notes that in 2004 levels of practice (in promoting learning autonomy) still appeared to lag behind levels of values. What teachers espouse as good practice is not what they necessarily implement in their classrooms. Waeytens, Leans and Vandenburgh (2002, p. 319), in a study of 53 teachers in five Flemish secondary schools, found that 'learning to learn" remains a very vague concept for teachers.' They go on to note that this 'lack of clarity could be the reason why the introduction of "learning to learn" had only minimal impact on the teaching behaviour'.

We argue that there is a lack of the kinds of knowledge necessary for teachers to be able to implement a thinking or learning agenda in their classrooms. This lack is more than just a lack of tips and tricks; it is much more complex. Teachers need deeper understandings of classroom dynamics, classroom discourse, and relationships, as well as understandings of student and teacher change.

This study reports on the practice of ten teachers who have taken the research seriously and explores what happens when teachers shift their primary focus from teaching to learning, and the implications this has for both teachers and students in their classes.

The teachers have been part of the Project for Enhancing Effective Learning (PEEL), which began as a collaborative research project in 1985 with 10 teachers and two academics. The purpose of PEEL was to focus on learning with the aim of helping students become more metacognitive. At that time, the teachers in the original study understood that they needed to talk with students about learning. They also came to realise, over time, that both teachers and students would need to change their conceptions of what learning was, their teaching and learning behaviours and their attitudes to learning. For the students, these changes in conceptions, behaviours and attitudes collectively meant they were able to become more metacognitive. The present study builds on this body of knowledge and practice, and takes the notion of metacognition a step further. Teachers in this study are modelling metacognition for their students by explicitly sharing with them their pedagogical purposes.

The teachers teach in both general and specialist disciplines. This study is based in one state (Victoria) system in Australia.

METHODS

The teachers in this study use self-study, action research methods, to tackle some of the issues involved in implementing a learning agenda. They form a team, along with two academics (the authors), which meets regularly to share and reflect on their practice. This model of collaborative professional development and teacher research has been a feature of the PEEL project since its inception. (For more information about PEEL and its publications, see the website: wwww.peelweb. org). In the first two years of PEEL teachers (in the one school) worked closely with academics. After the second year, when the project continued beyond its original intended time span, the input of the academics was no longer possible to the same intensive extent. PEEL spread to other schools and a network of teacher groups was developed which included some academic input, and this has been the pattern for 26 years. Two federal government grants facilitated another intensive collaborative project involving intensive academic-teacher collaboration from 1995 to 2000, and during this time we learned more about how close collaboration could be useful in developing new knowledge about teaching and learning. (Loughran, Mitchell and Mitchell, 2002). This current research group was formed with the explicit purpose of re-establishing those teacher academic links.

The teachers in this study have all had a high exposure to PEEL ideas and have successfully embedded these ideas about student learning and metacognition into their practice. They have a high level of agreement on what constitutes a learning agenda, as well as sophisticated understandings of what 'learning to learn' means.

DATA SOURCES

Most of these teachers have been documenting their practice for several years. There are three sources of data. The first comes from focus group meetings of teachers involved, beginning with two of the elementary teachers, (Jill and Jo) in the late 1990s, then moving to a larger elementary network (PEEL Primary Group) and from there to a combined elementary secondary group (the Sharing Pedagogical Purposes group) involving all the teachers listed above. Detailed records of these meetings, plus individual teacher reflections provide some of the data. The second source is video recordings taken in the classrooms of Jo Osler, Amanda Saffin, Tanya Whiteside, Bree Moody and Sarah Foley. These recordings have been subjected to analysis by both the teachers themselves and other members of the profession (in in-service sessions). The third source of data is the broader collection of teacher writing, and teacher and student interviews that has been collected over the past two decades in the broader PEEL network.

We use this data firstly to document the development of our understandings of the kinds of knowledge we believe is important to furthering the notion of metacognition and learning how to learn; and secondly to discuss some insights and outcomes so far from the project.

WHAT DO WE MEAN BY SHARING PEDAGOGICAL PURPOSES?

In 1975, Lortie noted that students

> …are not privy to the teacher's private intentions and personal reflections on classroom events. Students rarely participate in selecting goals, making preparations or post-mortem analysis. Thus they are not pressed to place the teacher's actions in a pedagogically oriented framework'. (p.62)

Lortie's comment preceded the development of the notion of metacognition and becomes even more apt in an educational world where metacognition and learning how to learn are commonplace goals. Understanding what teachers are doing and why, and participating actively in their own learning are clearly important aspects of metacognition. This group developed the phrase sharing pedagogical purposes to describe how they are researching and developing these important aspects of metacognition.

The original idea for this group came about in 2005, when two PEEL elementary teachers (Jo and Amanda) were interviewed after being videotaped teaching. They were asked how and why they had selected and sequenced the (teaching) procedures they had. They talked in terms of the type of thinking that each procedure stimulated, the value of this for their key content ideas, the level of independence that their students were currently capable of and the next step that they wanted them to take in this journey to higher quality learning. Their students were also interviewed and they talked about the different purposes of the teaching procedures that their teacher had used and how each one helped their learning and led to the next procedure. They talked about their own learning behaviours and the decisions they made both generally and on that particular day. They reflected on what they had done and how well they had met the intent of the tasks and what they might do differently in the future.

These comments indicate that both teachers and students had a sophisticated sense of what teaching and learning involves and that everything they do, or are required to do, made sense to them in a range of ways. This is not always the case in schools and classrooms where students, in particular, often complete tasks with little or no understanding of why they are doing them.

This idea of 'sense-making' was a key step in the development of our current understandings. We realised that the teachers we were observing and talking with had a very clear sense of such aspects of practice as the kinds of learning problems/poor learning tendencies that a particular task, concept or skill may throw up and a sophisticated sense of the kinds of thinking and interaction (Good Learning Behaviours − Baird, 1982, see appendix) that they want during a lesson. They understood issues of student change, as well as the nature of the journeys of student change, believed that quality learning can be taught and learnt and hence that this is worth persisting with. They had a clear sense of the big ideas and key skills they were teaching as well as ways that students may construct rich meanings for these. They saw themselves as collaborative problem solvers and generators of new wisdom.

Their students had a general sense that procedures such as Venn diagrams have purposes in terms of types of thinking and learning behaviours, as well as the specific purposes of each one, and a sense of the value of these sorts of thinking/ learning behaviours. As a consequence they had a sense of purposeful intellectual engagement versus mere busy work. They understood why a teacher may use behaviours such as wait time or delayed judgement; and they had a sense of whether or not they have an understanding of new ideas and hence of when and what they need help on.

From the outset, PEEL teachers had been raising awareness of aspects of quality learning with their students and, in so doing, promoting metacognition. The video data highlights how Jo and Amanda were taking this sharing a step further. This insight stimulated the establishment of a group to explore and extend this idea. It involved several secondary teachers who felt they could transfer this idea to their classrooms, leading to the notion of a more explicit sharing of what we called the teacher's 'pedagogical purposes'.

When teachers engage in sharing their pedagogical purposes they do two major things: they implement a 'learning' agenda alongside the content or curriculum agenda, and, in order to do the first, they develop a shared language for learning with their students.

A learning agenda

A learning agenda incorporates understandings about learning, pedagogical content knowledge, and understandings about learning to learn and understandings of student change. Understandings about learning involve knowing what constitutes quality learning. We describe quality learning as being learning that is purposeful, intellectually active, independent and metacognitive. Its precise nature is multifaceted and differs according to the content or skill to be learned, and the tasks involved. Learners need to know, among other things: how to process new information; make links with prior knowledge and the outside world; monitor their understandings and progress on a task; extend and challenge both their own understandings and those of others; and reflect on what and how they have learned. They need to have persistence and learn from mistakes, be able to make productive and informed decisions about both what they are learning and how they are learning it, and be willing to take risks.

Teachers with a learning agenda also have high level of pedagogical content knowledge (PCK) (Shulman, 1987). PCK involves knowing students' original ideas and beliefs, and the potential difficulties they often reveal in understanding concepts and ideas; knowing alternative ways of representing those ideas; and having knowledge of a variety of teaching procedures and the ability to purposefully select which ones will be effective in overcoming difficulties and changing beliefs and ideas.

Understanding of learning *about* learning is one of the important contributions of PEEL to the issue of promoting metacognition and teaching thinking skills. This

understanding includes knowing how and when to stimulate initial and recurring discussions about learning, the kind of language that needs to be developed, the kinds of understandings students can acquire about learning, and how these can develop over a school year. Teachers use these understandings, as well as a range of teaching procedures developed, adopted or adapted by PEEL teachers, to plan their teaching sequences and their learning interventions.

Teachers also need to understand the process and importance of student change. When we began PEEL, we set out to change students learning behaviours, by which we meant how they were thinking as well as their actual classroom behaviours. We soon found that this was only one of several dimensions of change where we needed concurrent strategies (Baird & Northfield, 1995). Building the appropriate trusts is another dimension of change that took us a few years to clarify, however there are two other dimensions, that we identified in our first year that are equally important if students are to engage in the sorts of behaviours that we have been describing. One is changing students' conceptions of what good learning is and what their role and their teachers' roles could be. The other is changing their attitudes as to what sorts of roles and teaching and learning behaviours they prefer.

A learning agenda does not discount or devalue content or skills. The teachers have a content agenda which runs parallel with their learning agenda. One of the teachers, Damien, describes wanting his students to be able to 'talk about English and learning in the same breath.' We would argue against an approach becoming popular in Australia in which the 'thinking' or 'learning' is taught as a discrete subject, or content-less unit of work. Research indicates that this approach is not particularly effective (Hattie et al, 1996) and that students don't transfer the understandings and skills into their discipline based subjects.

The following interview with Amanda (who had been teaching about the planets) illustrates how she combines both content and 'learning':

Ian: O.K. Now Amanda, the kids did a number of things this morning. And different sorts of things. I was just wondering what for you, was the most important thing that they did?

Amanda: I was wanting to see how independently and confident the children were using the procedures that we have talked about all year, but also how they were going about it independently in terms of their researching skills.

Ian: You've given me an answer there in terms of a learning curriculum. You haven't given me and answer in terms of planets or space.

Amanda: No, I guess all those sorts of things mould in to it. I would probably look at a topic and then pull out…tools and my procedures and then implement them into a learning curriculum and into how I am going to go about, and probably when I look at my purpose − in a sense, might do it backwards instead of suggesting to go and write a postcard, really pulling out what skills

and what procedures the children are going to need in order to support them when they go about their learning tasks.

The students also develop a learning agenda. Jo's (Prep/Grade 1, aged 5–6) students completed a sequence of activities about a story they had read, including an information grid, a Venn diagram and finally a character profile. A video clip shows students working independently and without having to ask Jo for help or instructions, for 90 minutes. Jo then debriefed on the sequence using De Bono's 6 Thinking Hats.

> Jo: O.K. I was talking to Jess before about our hats that make us think in a different way about what we've been doing and Jess you said you'd like to have a look at Green Hat today, is that right? O.K. let's take it on. How might I do this differently and I said to Jess you've just done it. Would you change anything that you've just done and what would you reply Jess?

> Jess: I'd think of new ideas for the character profile instead of doing all the things on the Venn diagram.

Jess, aged 6, had completed her character profile, but had quite independently reflected on what she had written and realised that it contained no ideas that she had not already reported in her Venn diagram!

As part of the learning agenda, teachers share their purposes with their students. One way of doing this is encouraging students to ask 'Why are we doing this?' The teachers use a range of teaching procedures which are strategically selected to promote various aspects of quality learning, and they discuss with the students why they are doing what they are doing. For example, when the teacher uses a Venn diagram they discuss the fact that it is a graphic organiser used to compare and contrast. A concept map is used to make links and connections, and an interpretive discussion is used to bring out student ideas and views (see Mitchell, 2009).

Several of the teachers have moved their students to the point where the students themselves select procedures, in a purposeful way and are able to articulate this purpose. In the following article (posted on our wiki) Tanya reports on how her Grade 1 students (aged 6/7) engage in a discussion about how to plan a letter thanking the principal for giving the class a 'fun' day as a reward for good behaviour (in this case, good learning behaviours).

> When we talked about the Think, Pair, Share I asked the students how this would work.

> Will: "You need someone to pair with."

> As a class we discussed this one and we thought about how many children we would need doing this one in order for it to work. We came up with four. If we had four people interested we could use that one.

We came to the KWL chart. It seemed this one had been chosen by a child who was really only interested in putting up a suggestion rather than thinking about how it might be helpful. Nonetheless, she was making a contribution to the discussion and sharing her ideas. When I asked her how she thought this procedure could help, she was unsure and couldn't explain it.

Another child, Taeyah said;

"We can't really use it because we didn't really do any learning on the day… (pause here – I wanted to jump in and say "Hey! We learn something every day!" but I refrained, allowed the wait time for her to think, and then she went on)…well, we might have learnt things but that's not what the day was all about."

Sophie: "KWL is more for when we are learning topics."

Tom: "It won't really work but the PMI would. You could say the Plus, Minus and Interesting things of the day". With that he got up, pulled the PMI card off our display and put it on the board with the others.

Tom had made a good link – the KWL and PMI both have three columns and look quite similar. The PMI would also work well for this activity.

The rest of the class agreed with this, so it was decided that this time the KWL would not really help us plan for our writing. The child who suggested it was thanked for contributing it.

This discussion about how to use the procedures went on for around 25 minutes. At the end of this, the children had no hesitation whatsoever about what they were going to use. I had no templates organised, so I told them they had to draw up their own procedures. Everyone got to work immediately and stayed on task for the remaining 40 minutes, working on their procedure and then moving on to the writing of the letter.

We reflected about the use of the procedures the following Monday and this is what the children had to say in answer to the question 'How did the procedure help with your work?'

Tom: "Because you… um… make a plan before you do your work and it gives you nearly everything you did on the fun day."

Lauren W: "Because we had everything down already and it helped us to write it on the letter."

Taeyah: "It helped us organise our ideas and then put them down and then

when we forgot what we did, well kinda forgot, we could look on our procedure."

Nathan: "It helped writing stuff down before you were writing the letter."

Brayden: "Because if you just said write a letter you won't be able to think what you did and the procedure could help you remember what you did on the other day."

A language for learning

Crick and Wilson (2005, p.359) note that 'One of the features of the education system is the paucity of a language for learning as a process and participative experience.' The teachers in this study build over time a shared language for learning, and an understanding of what sorts of conversations are possible with students. They use a language of learning which gradually becomes a shared language, with students able to identify and articulate aspects of learning. Sarah notes that talking about learning is regarded as 'everyday talk' in her classes. Tanya began 2008 with a class of Grade 1/2s – and she had four students who she taught the year before in Prep. When she asked the students at the start of the year to describe a good learner, her new students made comments like 'Good learners don't be bad.' One of her 'old' students stated that 'Good learners don't stay stuck.' In one year she moved 6 year olds from the notion that learning is about being 'good' for the teacher, to the idea that learning is something they themselves can control and understand.

In 1985 PEEL teachers developed a list of Good Learning Behaviours (see Appendix) which has proved extremely useful for teachers in both developing classroom procedures and strategies, and in providing a language for learning. In the following extract from an interview with one of Amanda's students, Lochie (Grade 5), uses the language of the good learning behaviours.

Interviewer(Jill): I'm looking at all these good learning behaviours there, can you describe how knowing about those has helped your learning in any way. So let's start with you Lochie.

Lochie: Well they help us by if we don't really know what to do they help us understand the activity because Miss Saffin usually talks a lot about why understanding activities is important and don't stay stuck. We have a lot of stuff around the room to help us with our things as some people aren't very good at timetables and they look up timetables and a lot of people make links to our other charts that we have around the room.

The language for learning includes
1. This is why we are doing this. Purposes and reasons for tasks and the big ideas

125

and key skills associated with them are explicitly discussed. So often tasks are presented as just that − tasks.

2. Student Choice. Primary teachers constantly make decisions for students about the 'best' (or only!) way to do tasks. It is possible, and preferable, to give students far more control over their work with real decisions to make.

3. Discussion of consequences of choice. The benefits of giving students choice are enhanced by non-judgemental debriefs on the consequences of choices.

4. Using labels for teaching procedures. All the teachers built up a shared meaning with their students for a list of teaching procedures that they select and use regularly, such as Venn Diagrams, Mind Maps, KWL and PMIs. The students become familiar not only with the procedures, but their purposes in terms of learning.

5. Thinking about thinking/ learning about learning. The teachers use words and phrases such as 'reflecting', 'linking' 'wait time' and 'down time' to talk about thinking and learning and to give students a vocabulary to do this.

6. Encouragement to take risks. Many decisions involve safe options and risky options. Teachers give greater respect for students' intellectual capabilities and encourage and trust them to step outside conventional boundaries.

7. Highlighting good learning behaviours. The list of good learning behaviours is at least the fifth draft of a list that was first developed in the second year of the project to list the sorts of behaviours that we felt reflected quality learning. One value of this list is that it makes teachers far more sensitive to these behaviours. This meant that when one occurred, they are much more likely to stop the class and briefly comment on what it was as well as how and why it was 'useful' to the class.

An example of some of these aspects of a language for learning is found in a debriefing of a sequence of activities which Amanda's Grade 5 students had completed.

Amanda: How has the data chart helped us so far in our learning?

Pat: To gather the information for the PMI.

Student: To get the facts together.

Amanda: O.K. Yeah.

Student: To sort the information.

Amanda: Because it has. There's been specific categories hasn't there to be able to sort the information because we have had lots of information that we had to read through with all the photocopies as well as the big books and the resources that are in the tub and that data chart has been able to for you, to sort into the categories as you've already suggested. And how does the PMI help you with your thinking?

Student: Because when you get to the Postcard part, like when you have to write down stuff it tells you like the good things that would happen, the bad things and the interesting things. It sort of sorts the information out.

Amanda: Terrific. Good linking to what Chris has said as well. (Amanda here refers to a Good Learning Behaviour).

OUTCOMES AND INSIGHTS

In detailing what we mean by sense making, a learning agenda and a language for learning, we have, of course, reported some outcomes and insights relevant to these issues. In this section we focus on what has emerged over the 18 month period that 'Sharing pedagogical purposes' group has been meeting.

Doing things with students, not to them

One of the biggest changes in teacher practice was the move from doing things to students to a much more collaborative and sharing intellectual relationship between students and teacher.

In all of the classes studied, students are encouraged to make their own decisions. Jill and Jo implemented student decision making in their classrooms in the mid 1990s. They believed that teachers made too many decisions for their (elementary) students and that the students (as young as 5) were not only capable of making decisions but would learn important skills of independence by doing so. Tanya begins the year with an 'enviro walk' in which the Grade 1/2 students explore the room and the class jointly decide where things such as equipment, and books will be put. They then move on to discussing which decisions they can make. Students can choose where to sit when they eat lunch, for example. She sets up a decision post which is an actual post to which she sticks cards which describe the decisions students are allowed to make for themselves. These include deciding who to sit with and what resources they need for a task.

Jo's discussion with Jess in the transcript above illustrates how she talks to her students as if they were co-equals in the learning process. In an interview with some of Jo's (Prep/Grade 1) students, Jill asks about how they operate in Jo's classroom, in terms of making their own decisions.

Jill: Emma I'm going to ask you this one. I've noticed in this classroom you've got a decision post and you people in here make lots of different decisions about your work and I want you to talk about some of the decisions you make.

Emma: When someone is talking to you – you just move somewhere else.

Robert: So where should I sit and who should I sit next to.

Jill: And why are they important decisions to make?

Robert: If someone is talking too much and asking you too many questions you've got to answer them back and it might be pack up time or home time.

Jill: Emma, what's another decision you make?

Emma: What resources do I need?

Jill: Oh – what resources do I need – tell me about that, explain what it means.

Emma: What do I need to do, what do I need to use for my work?

Jill: So Mrs Osler doesn't tell you that?

Emma: No, we just figure it out for ourselves.

Noticing good learning (and getting excited)

The teachers celebrate good learning behaviours when they occur and debrief with the class on why that behaviour constituted good learning. Sam describes how she responds to high quality student thinking and questioning:

> I love celebrating (often at my own expense) when my students ask a 'good' question. They (my students) are often laughing at me because I get so excited, sometimes I jump up and down, squeal with delight, do a little dance etc.

> We as teachers have to listen, really listen to their questions. When they do ask a thoughtful, question, where they are demonstrating that they are thinking and engaging in the class or making a link, this needs to be celebrated. There is a lot of background noise in teenagers' lives, so we need to ensure we stand out amongst the noise when they do this.

> After my dance, my squeal or whatever I do, we talk about the question. I throw it back to the class.

> "Why do I love Jarryds question?" then

> "What did Jarryd show me by asking that question?" or

> "What was Jarryd linking back to by asking that question?"

It is not until we have unpacked the question that we finally get around to addressing it.

Secret teacher's business

This term is taken from the Australian indigenous people's notion of 'secret men's or women's business'. We feel that teachers tend to have some 'big ideas' about their teaching that they don't share with students, and that they don't often model themselves as learners and thinkers while engaged in the act of teaching. The teachers in this project model metacognitive behaviour by talking to themselves out loud, wondering, questioning and reflecting. They let the students in on their 'secret teacher's business'. Tanya often stops and thinks out loud about what the class is doing and what they should do next. 'Wait a minute, I'm just thinking about what we'll do next' and they sit and wait. She says things might change and she explains why they have changed.

Damien describes how he talks out loud to himself in front of his (Year 7) class (he reports that they have decided he is not barking mad!). He models thinking, self-questioning and making decisions, and uses tactics such as wait time and delaying judgment and explains what it is and why he is doing it.

I start to write the first sentence, in black, on the white-board. I'm not sure how this is going to work out. This idea of making my thinking audible for the kids is new and my heart's racing. I explain as I write: "I'm starting with my topic sentence. This sentence will clearly explain what my paragraph will be about." (pause) "In other words, it's the sentence that expresses the main point of the paragraph."

I write 'The novel shows friendship.' I pause. "Question to self. Does my topic sentence clearly explain the point of my paragraph?" Long pause and then I shake my head. "It doesn't," I say and I turn to the class.

"It just **tells** (emphasis) the reader that friendship is a theme. The sentence doesn't **get inside** (emphasis) the idea of friendship.' Pause.

"What do I really want to say?" Pause. "What does the novel Camel Rider have to say about friendship?" Pause.

I cross out 'friendship' and add, using a red marker, 'that no matter how different two people are they can still be friends.' I pause, slowly reading aloud what I have changed.

I realise that the students have been watching and listening for about 10 minutes. I want to make the thinking audible for the whole paragraph, but I decide to stop now and debrief.

129

"Why did I do this?" I ask. "This will be an **_extra long wait time_** (emphasis) because I want you to read through your observations." I wait. The kids read and think. A silence of thoughtfulness fills the room. I let about 45 seconds pass.

I go over to the IWB (Interactive whiteboard) and pull up the thinking routine and the stems. **_I see? I hear? I wonder? I think?_** I gesture to them and turn one into a question to build a picture of their thinking.

"What did you see?" I ask.

"I see you thinking about what words you could use," says Kelly. "I see you editing as you write." says Andrew.

"Well done guys." I smile. "I'm really pleased to see some of you using **_the stems_** (emphasis) to help you make careful observations."

"Any other observations?" I ask.

"I saw you changing your mind," notes Liam. I nod. "I hear you asking some self-questions," says Matt. I nod and smile. I like how Matt's heard what I was doing as asking 'self-questions'. He's made a link. But I don't say anything about that at this stage.

"What did you hear?" I ask, working my way through the routine.

"I hear you using wait time," says Kristy. "I think you're showing us that you shouldn't be happy with the first thing you write." says Nakate.

"OK. What are you guys thinking? What are you thinking Emma?"

Emma says "I think you want to think more before you write."

"I think you're showing that you need to talk to yourself when you're writing," says Deon. Some of the kids laugh. I think they just pictured a class of kids talking to themselves as they wrote. "I think you're showing us how to ask self-questions," observes Andrew.

I spot Millie looking worried like she usually does. But she's confident enough to share something I think lots of the kids are wondering.

"What are you wondering Millie?" I ask, completing the routine.

"I wonder if we always have to do that?"

"Of course not," I respond, looking at her reassuringly and casting my best calming look across the room.

I explain: "Self-questions, if you know which questions to ask, can help you think about how you will work through an idea − in this case writing a paragraph. Sometimes thinking out aloud helps you to make sense of what you're doing."

Several teachers use tactics such as wait time and delaying judgment and explain, as they are doing them, what they are doing and why they are doing it. In this case, Jo's students are on the mat, reflecting on how they completed a task. One student is using a wall display to point to the answer he wants to give.

Jo: How did you decide how you were going to draw it? What were some of the decisions that you made when you were doing it … because it was one tiny little bit of paper and a pretty big group that had to draw it. (Student looks) Can you see how he's checking? (Student points) Well done. I like the way you checked and well done everyone, that was the best wait time because if someone had called out 'there it is' we wouldn't have given him a chance to think about it, so that's fantastic.

Student Change

The students observed in the study show, to varying degrees, increased independence, more purposeful approaches to their learning, and understanding of learning issues. They show changed conceptions of what quality learning is. These are illustrated in an interview with Sarah's Year 8 students.

Student A: There's a lot of different ways to learn – I used to think you just wrote off the board and that was it – but we have lots of different learning procedures and I find it easier because you have to actually think about it.

Student B: Good learners reflect…

Student C: We use wait time – if you're stuck on a question you get wait time to think about it.

Student A: Good learners persist … if you're stuck you try to persist to complete the work.

Student C: Good learners look for links.

Student B: You think into your prior knowledge to see if you can link anything.

They show changed attitudes to their own learning, and to what sorts of roles and teaching and learning behaviours they prefer

> Student B: To just give it a go.

> Student C: Persistence.

> Student A: (Has that changed for you?) Yes because I used to do it just one way but now I do my work lots of different ways and I choose the best way to do it. (How do you choose?) Not so much the easiest or the hardest but in the middle – one that I think is better than the others.

They had adopted reflection as a valuable learning tool.

> Student A: Not only do we reflect on work but we reflect on behaviour so if there's something wrong in class then we can fix it. Reflecting really is important cos you look back on what you've learned and if you don't understand it you can ask more questions. We ask fat questions. It doesn't make it easier for the teacher if we say Miss I don't get it (a skinny question). You have to explain what bit you don't get.

> Student B: We do it most of the time – helps us reflect on our behaviours and the whole class as a group – set a goal – what could I improve. Sometimes we reflect at the start of topics realise what we know bringing everyone's ideas together so the teacher knows what we know and what to teach us.

> Student A: You reflect on how you learned and GLBs − how much you got finished – quality quantity – can try again harder tomorrow.

> Student C: You get to go back on what you've done and what you've learned And you get to know what other people have learned as well and then you can improve next time.

> Student A: You learn from other people and you remember what you've learned.

They also note how their classroom environment has changed into a more trusting and co-operative classroom (and note that they take the credit for this!):

> Student A: Yeah cos our class is like a family environment.

> Student B: …our class is built up now – we're great now, we're strong in ourselves to not stay stuck and ask good questions – we've done a pretty good job.

Pat, one of Amanda's Grade 5 students, illustrates how the learning behaviours become ingrained:

> Jill: O.K. so it (The list of Good Learning Behaviours) helps you solve some of your own problems. When have you last used it Pat?

> Pat: I'm not really sure when I last used it because sometimes I just use one and don't even realise.

> Jill: So can you give me an example?

> Pat: umm, I did it today, cause like I was a bit stuck and asked a question and I didn't really realise that I actually used one of them.

Stages in the journey

The shift in emphasis from a teaching agenda to a learning agenda is not a simple one. We identify three overlapping stages in the journey towards implementing a formal learning agenda. Initially teachers involved in PEEL plan their lessons in terms of what and how they will teach a piece of content, selecting from a repertoire of procedures and assessment practices – in other words a teaching agenda. Teachers have some understandings of what quality learning is and have some concerns about passive or otherwise disengaged learning in their classrooms. They feel the need to make some changes to their teaching.

In the next stage teachers do think more about learning. They have made changes to their teaching practices and are ready to reflect on how these impacted on their students' learning. They are likely to be more specific about the learning behaviours they want to see more of in their classrooms. They tend to plan by unit or topic but do not have a formal long term learning agenda.

The final stage is where the teacher develops a formal longitudinal strategy for learning which permeates their practice. They share their learning purposes with the students, and they talk regularly with students about what learning is, and how it happens. They know what students are capable of early in the year, and how this can be developed, and how they need to work, to varying degrees, on students' attitudes to and conceptions of quality learning. They know that by doing this, and building a shared language for learning, how much change can be achieved by the end of the year.

Changing classroom practice in such a fundamental way requires persistence and patience. Many teachers feel self-conscious at first about openly discussing learning with students. It seems to take time away from 'covering the content'. Teachers need to believe, or come to believe in the medium term value of expending this initial energy and time. They also need to believe that it will be helpful to their practice and that it will not be an add-on, or extra work. Some teachers need

to watch what happens when other teachers do this before they are ready to embark on the journey themselves.

DISCUSSION

We have discussed four types of knowledge – knowledge needed to inform more purposeful teaching to promote quality learning and metacognition, and to move beyond metacognition to promote learning about learning. These are:
– knowledge about learning.
– pedagogical content knowledge.
– knowledge of learning about learning.
– knowledge about student change.

Pedagogical content knowledge is a construct created by Shulman (1987), and we do not add to it in this paper. Our knowledge about learning was informed initially by Baird's Poor Learning Tendencies (Baird and White, 1982), ideas from the constructivist paradigm, and further developed by the teachers involved in PEEL. Our knowledge about student change developed gradually over the first ten years of PEEL as we observed the students in our classes. Our knowledge of learning about learning has been the last to develop, and the constructs of sense-making and sharing pedagogical purposes are key aspects of it. We would argue that for teachers to move their practice into truly promoting metacognition they need to have all four sorts of knowledge.

The teachers in this study all have highly developed knowledge in all of these four areas. While it is true that this group is highly skilled, the consistency of the findings, and the extent to which ideas have been able to cross subject and year level boundaries in this group, indicates to us that the knowledge is transferable. The teachers in this project are in (six) ordinary schools working in different subject areas, with different age groups. These teachers have been able to build a common pool of practice and understandings of practice in spite of the differences between their settings.

Clearly, not all teachers will develop such sophisticated knowledge, but for those who do, it is immensely professionally rewarding. It takes time and support – we would argue for teams of teachers working together. Peer support helps teachers when the going gets tough (as it generally does, before it gets easier). But the rewards are great and all of the teachers involved in this study report on improved student teacher relationships, and vastly improved classroom climate. They also have an enhanced sense of themselves as researchers, innovators and developers of new knowledge.

The study highlights the value of long term teacher research projects in providing visions of the possible, much more sophisticated knowledge about journeys hitherto unimaginable, and an important cumulative effect as teachers build on their shared experiences. The role of academics is important as teachers continue to push the boundaries of what is possible. Being so close to their practice means teachers are often not initially able to articulate some of the tacit knowledge they

have acquired or created. In the meetings the group jointly analyses each teacher's actions, with prompting from the academics and other teachers who weren't there – and the analysis always comes after the practice has happened. Then the group finds new ways of framing what has happened.

It is a Newtonian journey: 'If I have seen a little further it is by standing on the shoulders of Giants.' The current group of teachers is building on two decades of work by PEEL teachers. One of the secrets of the success of PEEL is that the teachers own it, so it keeps re-inventing itself, as teachers devise new challenges and develop new knowledge to meet these challenges.

REFERENCES

Baird, J. R. & R. T. White (1982). Promoting self-control of learning. *Instructional Science*, 11, 227–247.

Baird, J., & Northfield, J. (Eds.). (1995). *Learning from the PEEL experience (2nd ed.)* Melbourne: PEEL Publishing

Cornford, I. (2002). Learning-to-learn strategies as a basis for effective lifelong learning. *International Journal of Lifelong Education, 21*(4), 357–368.

Cuban, L. (2004). Assessing the 20-year impact of multiple intelligences on schooling. *Teachers College Record, 106*(1), 140–146.

Deakin Crick, R., Broadfoot, P., & Claxton, G. (2002). *Developing ELLI: The Effective Lifelong Learning Profile in Practice*. Bristol: Lifelong Learning Foundation.

Deakin Crick, R., & Wilson, K. (2005). Being a learner: A virtue for the 21st century. *British Journal of Educational Studies, 53*(3), 359–374.

Hattie, J., Biggs, J., & Purdie, N. (1996). Effects of learning skills interventions on student learning: A meta-analysis. *Review of Educational Research, 66*(2).

Lortie, D. (1975). *Schoolteacher: A sociological study*. Chicago, IL, University of Chicago Press.

Loughran, J., Mitchell, I & Mitchell, J, Eds. (2002). *Learning from teacher research.* New York, Teacher College Press.

Mitchell, I. J., Ed. (2009). *Teaching for effective learning: The complete book of PEEL teaching procedures*. (4th ed.). Melbourne: PEEL Publishing.

Pedder, D. (2006). Organisational conditions that foster successful classroom promotion of learning how to learn. *Research Papers in Education, 21*(2), 171–200.

Quicke, J., & Winter, C. (1994). Teaching the language of learning: Towards a metacognitive approach to pupil empowerment. *British Educational Research Journal, 20*(4), 429–445.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1–22.

Waeytens, K., Lens, W., & Vandenburghe, R. (1997). *Learning to learn: How do teachers differ?* Paper presented at the American Education Research Association Conference, Chicago.

Waeytens, K., Lens, W., & Vandenburghe, R. (2002). 'Learning to learn': Teachers' conceptions of their supporting role. *Learning and Instruction, 12*, 305–322.

Wilson, V. (2000). Can Thinking Skills be Taught? *SCRE Spotlight* (79). Web site: http://www.scre.ac.uk/scot-research/thinking/.

White, R. T. & I. J. Mitchell (1994). Metacognition and the quality of learning. *Studies in Science Education*, 23, 21–37.

APPENDIX: A LIST OF GOOD LEARNING BEHAVIOURS

1. Checks personal comprehension for instruction and material. Requests further information if needed. Tells the teacher what they don't understand.
2. Seeks reasons for aspects of the work at hand.
3. Plans a general strategy before starting.
4. Anticipates and predicts possible outcomes.
5. Checks teacher's work for errors; offers corrections.
6. Offers or seeks links between:
     - different activities and ideas
     - different topics or subjects
     - schoolwork and personal life
7. Searches for weaknesses in their own understandings; checks the consistency of their explanations across different situations.
8. Suggests new activities and alternative procedures.
9. Challenges the text or an answer the teacher sanctions as correct.
10. Offers ideas, new insights and alternative explanations.
11. Justifies opinions.
12. Reacts and refers to comments of other students.

"GOOD PAL, WISE DAD AND NAGGING WIFE" – AND OTHER VIEWS OF TEACHING PRACTICE MENTORS

Riitta Jyrhämä and Erja Syrjäläinen

INTRODUCTION

At the University of Helsinki teacher education the network of teaching practice schools has become an important part of teacher education for both educational and societal reasons. The network guarantees a diversity of teaching practice experiences and therefore extensively prepares students to work as professionals. The fact that some municipal schools offer teaching practice is a prime example of how universities, in addition to serving as research and teaching facilities, also influence society.

The length of practical studies, or practicums, and their scheduling in relation to the rest of the studies vary significantly within teacher education programmes in different countries. In the Finnish system, student teachers have traditionally had several teaching practice periods of various lengths at different stages of their studies. In Finnish teacher education programmes, teaching practice periods are considered advanced studies in both the Bachelor's and Master's degree programmes (cf. Jakku-Sihvonen & Niemi, 2006; Jyrhämä, 2006; Niemi, 2008). At the University of Helsinki, teaching practice is organized so that student teachers gain experience in both university teacher training schools and municipal teaching practice schools. Two university training schools receive a steady influx of student teachers (several hundred per year), and cooperation between universities and these schools has become the norm. Teaching practice schools in the local area receive student teachers for teaching practice periods once or twice a year. Not all teachers in these schools become mentors, so only a few teachers, approximately 3–5 per school, receive student teachers and are involved in the teaching practice.

Teaching practice has taken place in local schools before, but since 2004 the intention has been to organize it in a way that promotes interaction which has pedagogical value for both sides. The network of teaching practice schools can be considered a model of school-university partnership. When this collaboration was being systematized, schools were invited to apply to become networking schools. At the same time, teachers were asked to apply for a course on supervision. Between 2004 and 2007, 680 teachers from 207 schools or educational institutions submitted applications to join the network of teaching practice schools. When the

latest supervision course ended at the beginning of 2009, the total of teachers who had attended supervision courses during these years was about 500.

In systematizing the collaboration, school mentors have become very important partners in teacher education: it is these part-time university teachers who implement the curriculum of teacher education. They receive a salary for this task and are also expected to take part in network meetings and conferences. In this part-time university teacher's role, the school teachers do the same job as the university's own supervising lecturers. That is why, in this study, we call their mentoring work supervision, although they are called mentors to distinguish them from to supervising university lecturers, which are called supervisors. In the title of this article the phrase in quotation marks refers to one of the participating teacher's views on supervision, in which he is trying to illustrate the different mentoring approaches or roles that are needed in supervision.

The supervision courses have been considered the most important form of co-operation guaranteeing the quality of the teaching practice. At the University of Helsinki, the supervision course has been a unit of 8 credit points, taking one year to complete. This study aims to investigate the teachers' views on supervision that were produced during the course. The participants in the supervision course were asked to explicate their views on supervision at the beginning and at the end of the course. The research is theoretically based on the model of teachers' pedagogical thinking (Kansanen et. al., 2000) and the idea of the didactic triangle (Kansanen & Meri, 1999), from which a theoretical view of teaching practice supervision leads to a 9-field typology of mentors' roles. The data were analysed in the framework of this typology. The background principle is that the course participants' views on supervision reflect their thinking on mentoring in teaching practice and their methods of supervising the student.

SUPERVISION – PROMOTING LEARNING IN TEACHING PRACTICE

The practical studies in teacher education play a key role in how future teachers will view their profession and the everyday work as teachers. According to Zeichner (1990), the quality of teaching practice defines the quality of teacher education. This view supports the fact that practical studies are essential to the process and should, therefore, be given the attention they deserve.

Student teachers and mentor teachers encounter each other in teaching practice where academic knowing and professional knowing meet (Figure 1). The mentor–supervisor's task is twofold: as a representative of the school, the mentor teacher acts as an expert in school pedagogy; but at the same time he/she must be aware of the objects and tasks of teaching practice. In this respect, the mentor serves in a university pedagogical role (cf. Jyrhämä, 2006).

At the University of Helsinki, the education of mentors has a long tradition (Jyrhämä & Kronlund, 2003), but nowadays the supervision course has become a larger unit. One of the main objectives of the supervision course was to develop one's own views on supervision. The course participants were asked to explicate

their views on supervision at the beginning and at the end of the course. In this study we investigate the views produced by 100 course participants in 2005.
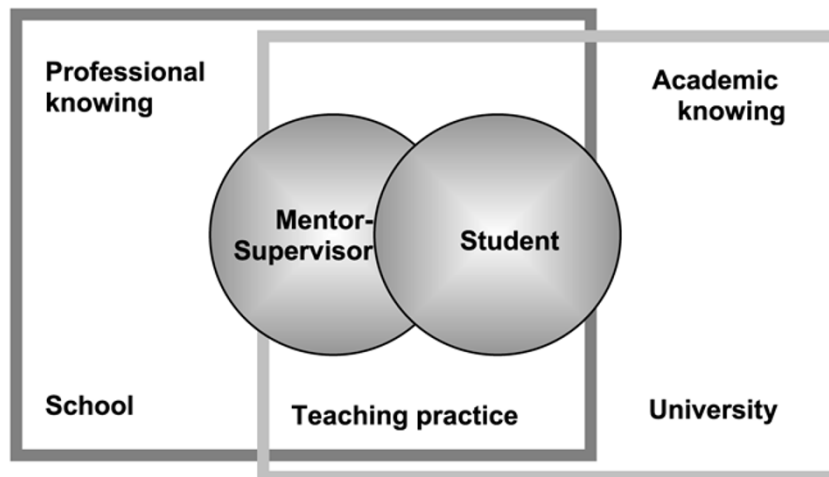
Figure 1. Teaching practice at the intersection of academic and professional knowing.

To give a picture of what kind of views on supervision were produced, here is one of them, written at the beginning of the course – and referring to the heading of this article:

> As a mentor I'm trying to be a good pal, a wise dad and a nagging wife at the same time. Remembering my own teaching practice periods, one period was very demanding because of the mentor. … I had to make lesson plans literally the whole night to the early morning hours. The feedback was rough and precise. … And as the other period was too relaxed, I was spurred to improvise, to act on the students' terms without precise plans. Later I noticed that I learned a lot from both mentors. I'll try to pick the best parts from them both, hopefully – and all the other influences I get now from the supervision course.

TEACHING PRACTICE SUPERVISION – SHARED PEDAGOGICAL THINKING

In this study the views on supervision are approached from the perspective of the model of pedagogical-level thinking. In teaching practice what is most essential is the trainee's actions in the teaching–studying–learning environment. To conceptualize teaching, a theoretical model for supervision is needed. At the University of Helsinki the basic principle of teacher education has been to educate pedagogically thinking teachers who are able to become aware of and to evaluate the grounds and

139

ethical premises of their teaching. The concept of teachers' pedagogical thinking has a multiform meaning depending on what theoretical approach supports it. For example, the terms reflection, metacognition, self-evaluation and self-direction all refer to the same phenomenon from different points of view. In short, it is a teacher's decision-making and judgement that reflects his/her pedagogical thinking. Kansanen (1995, p. 33) describes teachers' pedagogical thinking as a decision-making process supported by teachers' belief systems, in which the justifications are often unconscious. Pedagogical thinking manifests itself, on the one hand through a teacher's actions and, on the other hand, through how the teacher explicates his/her teaching and how he/she justifies his/her decisions.

Kansanen (1993) has constructed a model of teachers' pedagogical-level thinking based on König's (1975, pp. 26–31) ideas. This model describes the functional phases of the instruction process, the theorization of teaching and also the metatheoretical questions of education (Kansanen, Tirri, Meri, Krokfors, Husu & Jyrhämä, 2000).
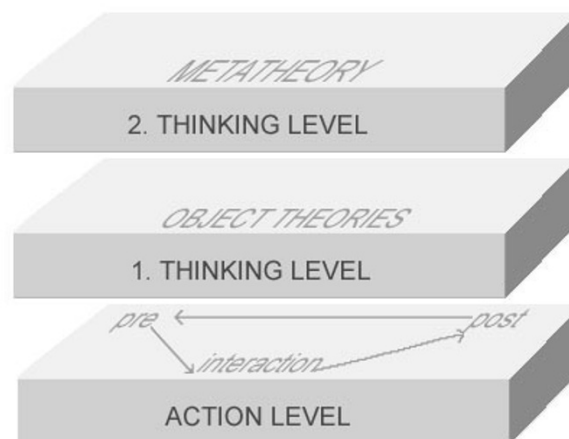
Figure 2. Pedagogical-level thinking. (Kansanen, 1993; Kansanen et al. 2000; Kansanen 2004, 97)

On the action level the planning (pre-interaction), execution (interaction) and evaluation (post-interaction) of teaching are contemplated. Most teachers' decision-making happens before or after the actual interaction. So-called object theories settle on the first level of thinking. This phase describes a teacher's thinking where she/he reflects on the practice of educational theories. This requires reflection on the concepts of the subject and on pedagogical theories. The teacher may apply his/her practical theory internalized by his/her own experience, and thereafter critically evaluate it.

On the second, metatheoretical level of thinking, the examination is focused on

object theories and the concepts in use. On these occasions the teacher critically evaluates the ethical premises of his/her decisions. When a teacher ponders whether his/her teaching decisions have been appropriate or just, there is always an ethical view underlying them that is connected to learning, interaction or to crucial moral questions linked to the school community (Handal & Lauvås, 1987, pp. 25–29).

The educational and pedagogical theories in teacher education aim at guiding the student teachers' thinking from the action level to at least the level of object theories. Teachers' actions based on independent decisions call for theorizing and ethical reasoning on the level of metatheory (cf. Kansanen, 1993).

The basic elements of the teaching–studying–learning process are placed in the didactic triangle interconnecting teacher, student and the content. In teachers' actions and thinking, the focus is, on the one hand, on the relationship to content and, on the other hand, on the relationship to the student. For the interaction between teacher and student, we can speak of the pedagogical relation through which the teacher guides his/her students.
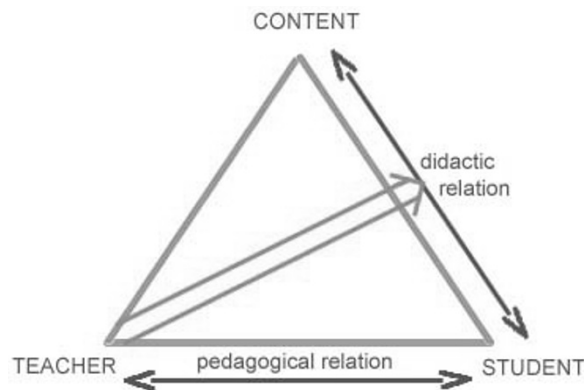
Figure 3. The pedagogical and didactic relations in the didactic triangle.
(Kansanen & Meri, 1999)

The pedagogical relation can be defined in three aspects based on van Manen's (1994, pp. 142–143; see also Nohl, 1982) thinking:

> *First,* the pedagogical relation is a very personal relation animated by a special quality that spontaneously emerges between adult and child and that can be neither managed nor trained, nor reduced to any other human interaction. *Second,* the pedagogical relation is an intentional relation wherein the intent of the teacher is always determined in a double direction: by caring for a child as he or she is, and by caring for a child for what he or she may become. *Third,* the educator must constantly be able to interpret and understand the present situation and experiences of the child and anticipate the moments when the child in fuller self-responsibility can increasingly participate in the culture.

Table 1 characterizes the pedagogical relation on each level of pedagogical thinking.

Table 1. Description of the pedagogical relation.

LEVELS OF THINKING	DESCRIPTION/CHARACTERIZATION OF THE PEDAGOGICAL RELATION
METATHEORY	- Contemplation of the value and moral issues arising from interaction - Clarification of the ideals of the pedagogical relation - Consideration of the effects of society – for instance, the meaning of market forces – from the point of view of interaction and collaboration in schools - Critical examination of the teacher's own practical theory of interaction and student relations
OBJECT THEORY	- A teacher's educational and psychological knowledge about student related and age-group related questions about interaction - Educational comprehension about pedagogical models and methods that allow approaching students and their personalities in a respectful manner - Conceptualisation of the events of interaction as individual reflection - Construction of a teacher's practical theory about meaningful pedagogical relations with students
ACTION LEVEL	- The ability to be present with students during teaching: the ability to listen, to take all factors into account and to respect the students - The fundamental features of the mutual interaction between teacher and students - Systematic and focused caring as practical acts and gestures

This pedagogical relation described above (Table 1) emphasizes the objects of students' personal development. However, there is no education in a vacuum and without substance. When viewing the didactic triangle by focusing on the student's relationship to the targeted content, the teacher's orientation towards this relationship can be called a didactic relation (Kansanen, 2004, p. 80). When the teacher is instructing students' target-oriented studying, the teacher's actions form a relation to this relationship between student and content. That is, the didactic relation is a relation towards another relation (cf. Harjunen, 2002, p. 110).

When the contents of a subject drift through a pedagogical sieve in the teacher's thinking, this processing of the didactic relation shows the teacher's subject didactical skills (cf. Yrjönsuuri, 1993). The didactic relation manifests itself in the classroom, in the interaction between teacher and student. In Table 2 the didactic relation is characterized on each level of pedagogical thinking.

Table 2. Description of the didactic relation.

LEVELS OF THINKING	DESCRIPTION/CHARACTERIZATION OF THE DIDACTIC RELATION
METATHEORY	- Wisdom about the meaning and task of the subject in society and in students' lives - The ability to critically contemplate the traditions connected to the subject didactic and therefore evaluate the teaching of the subject - Awareness of the history, traditions and values of the teaching of the subject
OBJECT THEORY	- Understanding of the subject curriculum in connection to the school's curriculum - A conception of the theoretical base of teaching of the subject: objects, central concepts, the construction of the subject in the teaching process - Awareness of the practical theory of teaching
ACTION LEVEL	- Possession of the basic knowledge and skills and a knowledge of the practical implementations and their possibilities in teaching the subject - Knowledge of the different instructional techniques, methods and modes of teaching that enable the effective teaching of a subject - Understanding of the students' level of knowing and crucial problems in learning the subject - Comprehension of the differences in separate student and learning groups and the way they affect the teaching of the subject - In actual teaching situations, prioritization and selection of the contents of the subject directed by the curriculum - The ability to prepare learning materials

In this study we concentrate on teaching practice supervision. If we think of the composition of teacher student and mentor together with the definition of the didactic triangle described above, the essential content in the mentor's and student teacher's interaction is the didactic triangle. Also, the same kind of pedagogical relation is formed between the teacher student and his/her mentor as in every instructional process between a teacher and student. In Figure 4 we illustrate this new triangle, called a mentoring triangle.
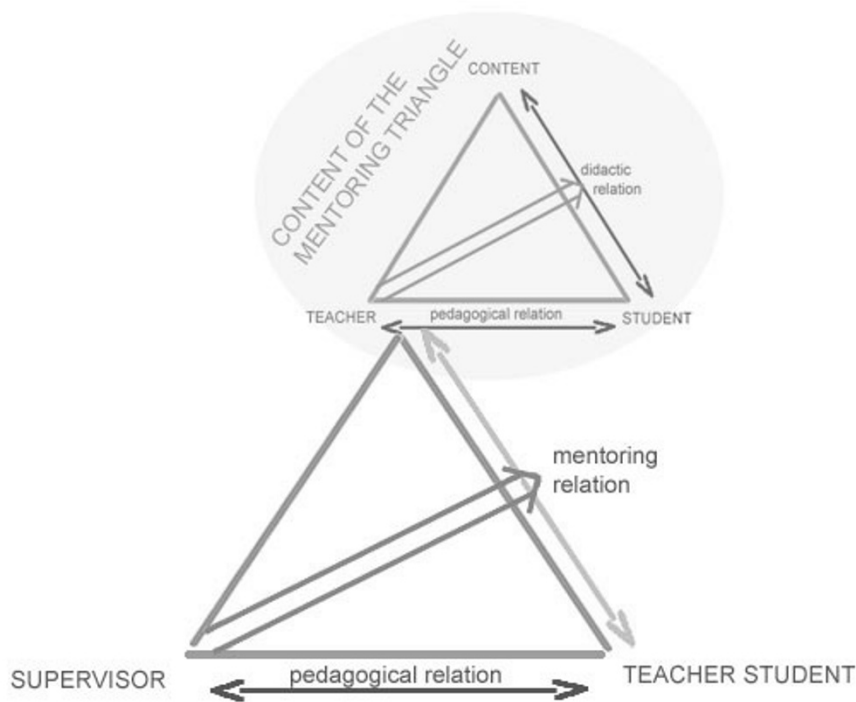
Figure 4. The mentoring triangle.

When the pedagogical relation and the didactic relation were examined through the model of pedagogical-level thinking, the relations in mentoring triangle can be then manifested in the levels of pedagogical thinking.

In Figure 5 we have tried to illustrate from the horizontal dimension how the pedagogical relation in supervision grows from the action level to the levels of object theories and metatheory. On the action level the pedagogical relation manifests itself mostly in the mentor as a model of action and thinking. That is, the pedagogical relation of the mentor and mentee is represented through the mentor's ways of acting and behaving. The conscious and unconscious procedures of interaction based on the mentor's personality and experience are now models for the mentee.

At the level of object theories, supervision's pedagogical relation takes the form of support, empathy and help. The mentor tries to ease the mentee's process and support his/her growth. The mentor is striving to act in terms of the mentee and at the same time is aware of his/her position as an expert. When the pedagogical relation develops to the metatheoretic level, the relationship is reciprocal and dialogical. The interaction produces creative reflection and fresh thinking and generates new insight and the ability to examine different kinds of questions and situations from new angles. The tone of the relationship is strongly ethical.

In the same Figure 5 the vertical direction represents the dimension of the mentoring relation. On the action level the practical questions are dealt with. The mentor focuses on developing the mentee's acts and practical skills. On the level of object theories the content of supervision moves to the teacher student's practical theory. The mentor provides the student with grounds for his/her action. At the same time the mentor strives to prove the meaning of theorizing while reflecting on one's own action. At the metatheoretical level, supervision develops the mentee's metacognition, especially in terms of critical thinking, and also brings ethical questions of instruction and education to the conversation.
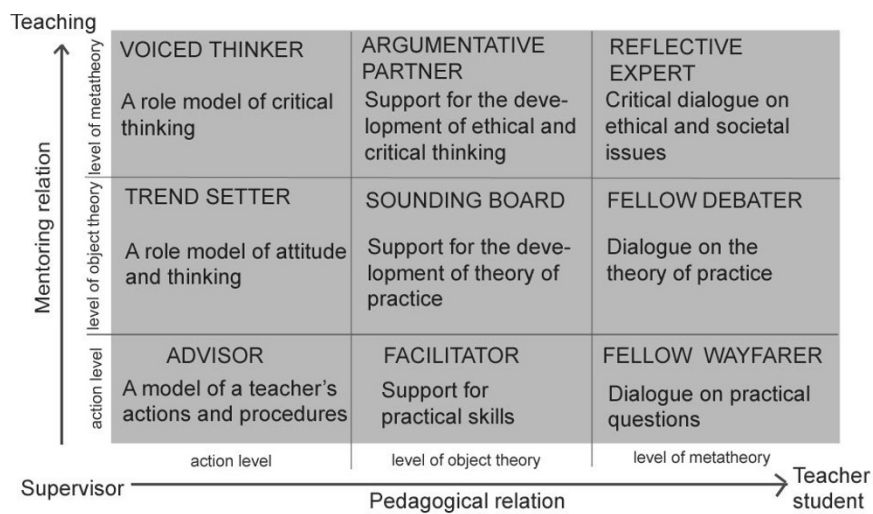
Figure 5. Description of the pedagogical and mentoring relations on pedagogical-thinking levels – mentors' different roles.

RESEARCH SETTING

In this study the *research questions* were as follows:
1. What kind of mentors' roles can be interpreted from the views on supervision produced in the supervision course?
2. How do views on supervision develop during the supervision course?

The data analysed comprised of 100 teachers' views on supervision at the beginning and the end of the supervision course. Altogether, 200 supervision views, two from each course participant, were analysed. These data were the target of a content classification where each view on supervision was screened against the 9-field typology of mentors' roles. From each view were explored different conceptual units that would fit the roles described in the typology. Thus one view on supervision could have several conceptual units, each of which could be categorized in

different roles in the typology. In the data there were views on supervision that only fit one category – especially in the first views on supervision produced in the beginning. Also, there were views on supervision that contained conceptual units that could fit into six different categories of the typology. The number of conceptual units explored from the supervision views was 451, of which 168 were from the views on supervision produced at the beginning of the course and 283 from those produced at the end of the course.

RESULTS

Table 3 below shows the categorization of supervision views into mentors' roles that vary in the dimensions of the *pedagogical relation* and the *mentoring relation*. Numbers 1–3 describe the pedagogical relation dimension, from the action level to the metatheoretic level. In a similar manner, letters A–C describe the dimension of the mentoring relation. The explanation of the letter–number combinations is as follows:

C1 = Voiced thinker	C2 = Argumentative partner	C3 = Reflective expert
B1 = Trend setter	B2 = Sounding board	B3 = Fellow debater
A1 = Advisor	A2 = Facilitator	A3 = Fellow wayfarer

Table 3. The placement of the conceptual units of views on supervision into nine different roles at the beginning (start) and at the end of the supervision course (f).

	1		*2*		*3*		*Total*	
	Start	*End*	*Start*	*End*	*Start*	*End*	*Start*	*End*
C	2	7	0	8	0	1	2	16
B	36	27	32	27	11	19	79	73
A	20	38	49	79	18	77	87	194
	58	72	81	114	29	97	168	283

Similar results are illustrated graphically in Figure 6. The conceptual units within the views on supervision on becoming mentors mostly proliferate during the supervision course and consequently enrich the views. Figure 6 illustrates that in becoming a mentor, teachers' views on supervision shift mostly from the action level (A) to the level of object theories (B) in the dimension of the mentoring relation. Conceptual units describing the level of metatheory were rarely found.
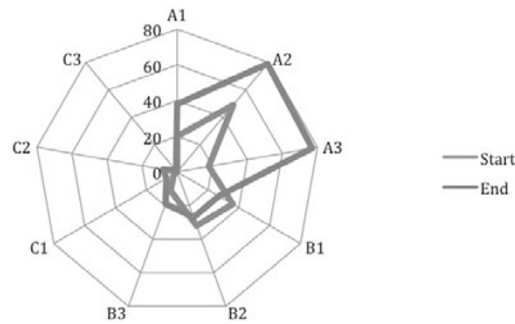
Figure 6. The categorization of views on supervision at the beginning and at the end of the supervision course

The thoughts on mentoring produced during the supervision course were mostly practical and were directed towards concrete matters. The results show that for the pedagogic relation, views on supervision vary from the action level to the thinking levels of object theory and metatheory. When considering the mentoring relation contents of supervision, the views varied mostly on the levels of action and object theory. The influence of the supervision course diversified the views on supervision, but did not increase metatheoretical-level thinking in a decisive way in the dimension of the mentoring relation. Instead, more metatheoretical level improvement was seen in the pedagogical relation during the course. The biggest change happened in the category of A3, in which the views stressed a dialogical grasp of practical issues.

In the future it would be worthwhile to investigate more closely every single participant's views on supervision and the changes that occured in them during the supervision course. In this study, the first 100 course participants' views were chosen for the data. In later studies the rest of the views will be added and analysed, including the views produced in the middle of the course.

CONCLUSIONS

The research shows that when considering views on supervision, the development of thinking on metatheoretic levels (categories B3–C3) probably requires years of supervision experience. Already at the beginning of the course some of the course participants noted that illustrating a view of supervision before gaining any mentoring experience is very difficult.

In this preliminary study about views on supervision, we wanted to test the functionality of the theory based 9-field typology on the mentors' roles. The model of pedagogical-level thinking (Kansanen 1993, 1995; Kansanen et.al. 2000) has already been used and tested in several studies, and it has proved to be useful.

147

Yet this model has not had very much theoretical development. By connecting the model to the didactic triangle, we have been able to elicit a picture of teachers' professional development more precisely. In teaching practice supervision/mentoring, the core content is teachers' professional development. When analysing the course participants' views on supervision, we came to the conclusion that formulating another triangle, the mentoring triangle, helped us to understand the versatile content of teaching practice mentoring.

The results show that the education of supervision has strengthened the student mentors' conceptions of the meaning of interdependence between the mentor and mentee. The supervision course gave more motivation to consider the quality of interaction. It is understandable that when developing one's views on supervision, the pedagogical relation has the primary focus. Forming a functional and confidential relationship is a prerequisite for being able to discuss many difficult and problematic issues. The meaning of interaction is stressed, on the one hand, because the mentee hopes to get something, to learn from the relationship. On the other hand, the mentor is responsible for the quality of the interaction, and so the interaction/relationship is worth investing in. Many conversations and learning tasks produced during the supervision education confirm this result: the meaning and idea of the dialogical pedagogical relation has become a crucial insight to many of the course participants.

The 9-field typology of mentors' roles developed in this study can be used in future supervision courses and thus help mentors to recognise their own way of mentoring and also encourage them to move between different roles according to the student teacher's needs. A mentor's self-reflection and flexibility with regard to working procedures according to knowledge about the mentee is also a model for the student teacher to improve his/her knowledge about his/her students and to react to these pupils' personal needs in the classroom. The pupils' needs may be for the teacher to take the role of "good pal, wise dad and a nagging wife".

REFERENCES

Handal, G., & Lauvås, P. (1987). *Promoting reflective teaching. Supervision in practice.* Milton Keynes: Open University Press.

Harjunen, E. (2002). *Miten opettaja rakentaa pedagogisen auktoriteetin? Otteita opettajan arjesta.* [How does a teacher construct pedagogical authority? Extracts from a teacher's everyday life.] Research in educational sciences 10. Finnish educational research association.

Jakku-Sihvonen, R., & Niemi, H. (2006). *Research-based teacher education in Finland – Reflections by Finnish teacher educators.* Research in educational sciences 25. Finnish educational research association.

Jyrhämä, R., & Kronlund, T. (2003). Tutkimuksen ja opetuksen ykseys – haaste praktikumien ohjaajille. [The integration of research and teaching – a challenge for teaching practice supervisors. In V. Meisalo (toim.), *Aineenopettajankoulutuksen vaihtoehdot ja tutkimus 2002. [Options and research in subject teacher education 2002]* Ainedidaktiikan symposiumi [A symposium of subject didactics] 1.2.2002 (s. 141–150). Department of Teacher Education. Research reports 241.

Jyrhämä, R. (2006). The function of practical studies in teacher education. In R. Jakku-Sihvonen & H. Niemi (Eds.), *Research-based teacher education in Finland – Reflections by finnish teacher educators* (pp. 51–69). Research in educational sciences 25. Finnish educational research association.

Kansanen, P. (1993). An outline for a model of teachers' pedagogical thinking. In P. Kansanen (Ed.), *Discussions on some educational issues IV* (pp. 51–65). Research report 121. Department of Teacher Education, University of Helsinki.

Kansanen, P. (1995). Teachers' pedagogical thinking – What is it about? In C. Stensmo & L. Isberg (Eds.), *Omsorg och engagemang* (pp. 32–45). Uppsala, Sweden: Uppsala Universitet.

Kansanen, P. (2004). Opetuksen käsitemaailma. [Conseptualizing teaching.] Jyväskylä, Finland. PS-kustannus.

Kansanen, P., & Meri, M. (1999). The didactic relation in the teaching-studying-learning process. *TNTEE Publications, 2*(1), 107–116.

Kansanen, P., Tirri, K., Meri, M., Krokfors, L., Husu, J., & Jyrhämä, R. (2000). *Teachers' pedagogical thinking. Theoretical landscapes, practical challenges.* New York: Peter Lang.

König, E. (1975). *Theorie der Erziehungswissenschaft. Band 1. Wissenschaftstheoretische Richtungen der Pädagogik.* München: Wilhelm Fink.

Niemi, H. (2008). Research-based teacher education for teachers' life-long learning. *Life Long Learning in Europe, 13*(1), 61–69.

Nohl, H. (1982). *Die pädagogische Bewegung in Deutschland und ihre Theorie.* Frankfurt am Main: Schulte-Bulmke.

van Manen, M. (1994). Pedagogy, virtue, and narrative identity in teaching. *Curriculum Inquiry, 24*(2), 135–170.

Yrjönsuuri, Y. (1993). *Opetuksen ymmärtäminen.* [Understanding teaching]. Helsinki: Yliopistopaino.

Zeichner, K. (1990). Changing directions in the practicum: Looking ahead to the 1990s. *Journal of Education for Teaching, 16*(2), 105–132.

CONTEXT AND TEACHING

CHAPTER 11

TRANSFER CREDITS IN HIGHER EDUCATION: THE PATH TO GLOBALIZATION[i]

Christine Arnold and Michael Kompf

ABSTRACT

Higher education has created global citizens who wish to move seamlessly through learning in ways that transcend cultural and political boundaries. In North America, many issues in policy development and institutional administration prevent students from full participation. Transfer procedures as stated in course calendars vary widely. As the higher education market is increasingly driven by student preference it is only a matter of time and economic expedience before Canada and many other countries develop universal credit models between colleges and universities. Canada's current ad hoc transfer system needs more to provide an equitable system of transfer for students. This loosely coupled system no longer serves those for who it is intended (Weick, 1988). A paradigm shift is occurring in the processes by which institutions handle transfers. Will higher education be coerced by outside legislation and impending business practices or will those within the system inform the shift through collaborative venture?

Global models of student mobility provide insight for what seems to be a local problem. The European Union's development of the Bologna accord in 1999 highlights the need for such venues as Australia, North America, and Asian countries to adopt a model for transfer as a means of staying current in a global economy where crossing borders is increasingly common. The challenge for Canada and others without a universal transfer system is to bring practices in line with international standards, while preserving a higher education sector that meets domestic and international quality expectations. The result will be easier and more comprehensible student movement between venues of study.

INTRODUCTION

For years we have heard of cases in which university students were unable to transfer their credits to other Canadian institutions of higher education. Preliminary research was conducted by contacting 25 universities in Canada, the United States, internationally with inquiries about transfer policies. Responses were wildly divergent, and lacking in consistency and coherence with respect to

student mobility (Arnold, 2006). Since the initial study, we examined policies and procedures that various universities have in place. Inquiries were made regarding what administrative units were responsible for determining the viability of credits for transfer, who was served by these policies, what changes are foreseeable in the near future, and most important in the context of globalization, the question of the viability of adapting transfer credit systems along the lines of the European Union's Bologna Project (Arnold & Kompf, 2008).

While previous research spanned international boundaries we found significant problems between and within our own borders. The success experienced by institutions in the European Union in attracting students is pushing Canadian institutions to align their standards or risk global academic incompatibility. International trade in higher education cannot be seriously considered for implementation until national unification of standards and transfer policies takes place. Currently, no universal system for transfer is in place in Canada. Of ten provinces and three territories in Canada, few use a transfer system.

Canada's western provinces have the most comprehensive transfer systems in the country established in the 1960s. Today, these western provinces possess comprehensive transfer systems where students can move from college to university programs with knowledge of credit value before application. Their online transfer guides are masterful showcasing programs, funding, costs, and course credit articulations between the largest universities and colleges in each province.

However, while Canada's western provinces have scaled the mountain of provincial transfer and are now looking nationally for support, our home province of Ontario (the largest province in Canada) lags behind. Barely able to find the equipment needed to engage in such activities, the province has no universal course-to-course articulation policy. Within the existing Ontario Transfer System unless one is in a joint program, such as nursing or policing foundations (i.e., enrolled in both university and college simultaneously), no course-by-course transfer policy exists and only block transfers are used. Numerous transfers occur among students moving to and from institutions but are not recorded or guaranteed.

The current study investigates student mobility between and among universities and colleges via a western Canadian council for transfer as a means of identifying components and procedures of an effective model and eventual pathway to universal transfer for the province of Ontario. This western Canadian model will not provide an exact equation for transfer within Ontario; however, it will provide a framework for adaptation. Objectives include (a) an anticipation of further agreements between and among Ontario University institutions, (b) a familiarity with the accountability of institutions on a more individual basis as a means of determining how they fit together as a whole, (c) determining the potential for change in policies and procedures dictated by economics shifting how institutions inform themselves and each other, and (d) how institutions in higher education communicate these mandates to learners.

While this study focuses on examples based in the Canadian experience it is important to note the implications these circumstances have for global advancement. Local courses of action are often the most informative places to observe, identify,

and ignite areas for global potential. The best practices revealed in this research have international intentions and can be drawn upon across regional landscapes for positive and negative attributes. Where Canada has looked to the European Union for a successful model of student mobility, Canada's developments can be studied by those not currently involved in the system for its reactions, mistakes, and solutions to the trend of globalization engulfing higher education.

RESEARCH DESIGN AND PARTICIPANTS

Participants of this study consisted of the staff of a western Canadian council for transfer with varying roles and duties in the organization. A breakdown of the council's staff includes: Executive Director, Associate Director, Transfer & Technology Manager, Special Projects Coordinator, Research Coordinator, Executive Assistant and Communications, and Articulation Coordinator. Participants were interviewed and participated in roundtable sessions, allowing each person to bring new questions into the forum in a flexible process (Airasian et. al., 2008).

Interviews and roundtable sessions ranged from 30 to 80 minutes in duration and were guided by a semi structured protocol focusing on three areas of inquiry into the transfer system/guide within the province: (a) Organization/roles, (b) Describing the transfer model, and (c) Applicability to Ontario. Interviews were audio recorded and transcribed verbatim and analyzed using coding for key word terms/phrases (Gardner, 2008). An outside company, MT. STAT, was hired to transcribe the interviews so that accuracy was maintained and any potential biases were not included. The essence of the transcript has been captured and the most precise statements in response to the questions pulled out. Data analysis was inductive identifying common themes and concepts across experiences. Interpretation considered consistency and variation across roles and the organization as a whole.

BACKGROUND: THE BOLOGNA FRAMEWORK'S FAR REACHING EFFECTS

There can be little doubt that the process of globalization exerts significant influence on the world of higher education (Duderstadt & Weber, 2008). The number of foreign students studying for professional degrees or doctorates in the university system of major industrialized nations (e.g. the United States and EU) is large; more than two thirds of students stay on. Centres of excellence in higher education and labour are exported to developing countries that, in turn, are increasingly adapting curricula that conform to international patterns and standards (Hartmann, 2008). Given such outcomes, graduates are employable almost anywhere as shown by the movement of academics and professionals. There are more professionals (e.g., lawyers, architects, accountants, managers, and those in computer software) who can emigrate permanently or live temporarily abroad including frequent travel for professional reasons. It seems that people are almost as mobile as capital (Duderstadt & Weber, 2008).

Policy formation in higher education is a national and international concern that will standardize the conditions under which universities operate in order to achieve political goals (Dill & Sporn, 1995; Kogan, Bauer, Bleiklie, & Henkel, 2006). Government steering of higher education institutions has tended to move from direct regulation of individual institutions towards a stronger emphasis on regulating the economic framework conditions under which they operate resulting in development of national higher education systems (Bleklie, 2007). While the integration of higher education systems is primarily driven at the national level, supranational actors, like the EU, OECD, UNESCO, WTO combined with international trends have become strong influences on policy decisions (Bleiklie, 2007).

The process has a global reach including standardized degree systems, and the formation of systems for institutional evaluation and accreditation as core elements with the purpose of turning universities into dynamic, entrepreneurial high-quality enterprises (Bleiklie, 2007). The integration of higher education confronts policy-makers with important questions: How should the relationship between institutions be organized? What are the proper procedures by which integration should take place? Along what dimensions should integration take place? Does extending access to higher education necessarily require actions locally or is encouragement of geographical mobility required? (Bleiklie, 2007; Brennan & Naidoo, 2008).

Local and global actions are occurring as the European Union becomes a normative power. New alliances are formed linking intellectuals closely associated to service sectors such as computing, financial, legal, and healthcare. Trust and norms shared by provider and client with the expansion of higher education are evident with the labour market gaining in attractiveness since its unification as a single market project (Hartmann, 2008). The labour market of the EU has developed in critical mass representing a challenge to the United States for power and global trade (2008).

The scale of the process and the countries involved is leading non-European countries to align their system to the Bologna Process. Institutional networking has become a standard for meeting market anxieties and pressure for student enrolments. The higher education market "is being driven by the preferences of students" (Duderstadt & Weber, 2008, p. 14) with Australia, North America, and Asian countries conforming as a means of remaining current in a global economy. Other countries, in which no universal transfer system exists, have been improving their systems and looking to the European Union's Bologna Accord for guidance.

To some extent the process is already happening; Latin American countries, for example, have expressed interest in emulating the Bologna Process along with interest in the process expressed by Asian countries (Australian Department of Education, Science and Training, 2006, p. 9). Facilitating diffusion of these norms are EU funded projects such as Eramus Mundus Tempus, and Asia Link. As well, EU member states, backed by the European Commission, have begun to establish Common Areas of Higher Education with other regions, notably Latin America and the Caribbean (Hartmann, 2008). The federal Education Minister of Australia, Julie Bishop, warned that Australian universities "could lose tens of thousands of fee paying foreign students to Europe unless they adapt to the Bologna Process"

(Maslen, 2006, p. 1). If Australia does not match these developments, a significant number of the 32,000 Europeans enrolled at Australian institutions could find other destinations more attractive. Compatibility with Bologna would align key features of the Australian university system with those of 45 European countries assisting student movement and other forms of engagement (Maslen, 2006).

Meanwhile, Russian institutions of higher education have already joined the EU bandwagon after "analysis of adaptation by leading US and European universities to the changes of social and economic conditions of external environment" (Duderstadt & Weber, 2008, p. 109). African and Asian countries too are considering alignment and change for their systems of higher education and are already taking steps to conversion. North America, however, is not moving quite yet. Instead, Canada is keeping an eye on the progress and power of the EU acknowledging what consequences international developments could have on the success and structure of higher education in the nation.

Canadian Perspectives on the Bologna Process

At the University of Alberta during March, 2009 academics and organizational representatives met to discuss Canadian Perspectives on the Bologna Process. As the Bologna Process shakes up higher education in Europe, observers here are trying to gauge what it means for Canada's higher education system (Charbonneau, 2009). The process will complicate student mobility between Canada and Europe and may also affect Canadian universities' efforts to recruit international students. Canada's response has been that of a "close watching eye" according to Robert White, senior policy analyst for international relations at the Association of Universities and Colleges of Canada (AUCC), while tracking Bologna developments and witnessing how other non-European countries are responding (Charbonneau, 2009). There are three main areas where Bologna is likely to affect Canada: 1. Bologna has set three years for a bachelors degree, two years for a masters, and three for a PhD and as such Canada will have to decide whether to accept these degrees as sufficient qualifications for their graduate programs; 2. Meeting international student requirements as more opt for European options could become problematic; 3. Exchange programs with European Universities could challenge mobility structures between Europe and North America (Charbonneau, 2009).

The reviews are mixed but two options do seem to present themselves. Clifford Adelman of the Institute for Higher Education Policy in the U.S. has studied the effects of Bologna on non-European countries and feels that institutions should jump on the Bologna bandwagon or risk being left behind (Charbonneau, 2009). However, The Canadian Council on Learning and Judith Maxwell, former head of the Economic Council of Canada, state that the best bet for universities and colleges in Canada is to invent their own version of the Bologna process through a Pan-Canadian system. This second option is more desired and thus the concept of a *Pan-Canadian System* has recently filled the agendas of institutions and agencies

157

of higher education across the nation. However, unlike Europe, Canadian higher education policy is provincial not federal. Therefore, each province must develop a model itself before reaching out to other provinces to establish a national system.

Student Mobility in the Province of Ontario

Ontario has a transfer guide for block transfer agreements between individual institutions. But, no course-by-course (universal) guide exists comparable to that used in western Canada. Only those disciplines (e.g., Policing Foundations and Nursing) with preset transfer routes benefit. Credit-by-credit transfer is not organized or posted; instead, individual institutions form rules for transfer as they wish with no measuring stick for institutions and no enforcement of standards.

Thus, the development of a transfer guide similar to those established in Canada's western provinces would allow knowledge of transferable credits before and after enrolment. Institutions would benefit from an understanding of the role each institution plays in distributing and maintaining students in higher education. Like the sender and receiver classifications the western Canadian council for transfer uses to track both the purpose and quality of an institution, colleges and universities in Ontario will need to know the level of quality and purpose of each institution from which students transfer. Institutions must be provided with information regarding: (a) the programs offered by each university and college in the province (b) academic level at which studies are being achieved at each place of study, and (c) standards and policies in place at all institutions. With these outcomes and intentions, institutions should be more readily able to gauge quality and enforce entrance requirements to encourage student access.

The Study of a Model for Successful Transfer in Canada

The western Canadian council for transfer investigated in this study has one of the most comprehensive provincial transfer systems in Canada. The province has had a fairly integrated system of higher education since the mid-1990s with an estimated transfer rate of over 40 percent for arts and sciences (ACAATO, 2005, p. 17). Across the three largest universities and averaging across the decade of the 1990s, this province's universities have admitted college students for every five secondary school students (BCCAT, 2004). This works out to approximately 22,000 students transferring from a college, university-college, or institute (BCCAT, 2005). This coordination has occurred because of a set of circumstances and actions unique to the province. Synchronization in higher education has been driven over the last three decades by institutions and the provincial government.

This Council is a successful organization largely because it has no government regulatory or legislative authority and cannot change or implement institutional polices. It is funded annually by the Ministry and members from the education system are appointed by the Minister (BCCAT, 2009). The Council works to serve the

overall best interests of the higher education system and does not formally represent any specific institution or constituency with which they are affiliated (BCCAT, 2009). No authority over any institution in the province is held by the Council and instead only suggestions and recommendations for new policies and procedures attaining to transfer and admissions are made. As a result institutions do not feel threatened by this organization and know that the Council is working for the equal betterment of each college and university.

The mandate of the council is to facilitate admission, articulation, and transfer arrangements among postsecondary institutions. Specifically, the council:

(a) encourages institutions to develop policies and practices regarding the transferability of post-secondary credit courses so that credit granted at one institution can be applied toward credentials at other institutions; and

(b) examines issues pertaining to capacity, demand, and student mobility, and recommends policies and practices related to the admission process for direct entry and transfer students (BCCAT, 2009, p. 1).

The council's purpose is to coordinate the transfer and articulation efforts of institutions in the province. The Council has not been given any legislative authority by government to carry out its mandate, but rather was created as an arm's length agency whose role was to facilitate collaborative efforts among autonomous institutions in a differentiated postsecondary system (BCCAT, 2004). This organization is apolitical since it is outside of the legislative framework and functions simply as a committee of the minister. The minister provides the budget for the year and the Council plans the projects and research that will be conducted.

With no legislative power, the Council does not pose a threat to institutions and can work as an uninvolved and unbiased mediator of transfer co-ordinations. Thus, transfer and articulation in the province has always been the responsibility of individual institutions, and the Council has coordinated and managed the processes involved.

RESULTS AND DISCUSSION: BEST PRACTICE GUIDE

We found five prevalent themes (gaps) in the current Ontario transfer system. While some recommendations would mean a change in policy, others require the participation of institutions and voluntary action by departments across campuses within the province. The result of this study was a *Best Practice Guide for Transfer* which can be used within the province of Ontario, across Canada, and internationally categorizing areas for improvement and consideration. Found below are the recommendations and practices most influential to a well-run transfer system, one where all stakeholders are aware of their position and role.

1. Articulation Committees/Communication

The establishment of articulation committees for particular disciplines is the first recommendation. One part of the Council's transfer and articulation process is the meeting of articulation committees organized by the committee members themselves. The committees (made up of a committee chair, system liaison person, and committee members from various institutions by discipline) meet once each year to discuss new programs, courses, and ongoing changes, as well as possible transfer initiatives that could be facilitated by discipline. The purpose of the committees is to expand opportunities for students' via the movement of transfer credits form one institution to another in the higher education system. This intention is met by providing a medium for exchange of information and increasing cooperation among institutions by discipline, advocating for program and course equivalencies where appropriate, and aiding in the process of inter-institutional transfer credit (BCCAT, 2007).

This essential element is the mechanism to build communication and trust between the participants because one of the hardest things to overcome, of course, is attitude. Even where there is some benefit for the universities to cooperate with the colleges, there may be no clear ways of faculty-to-faculty relationship building.

2. Course by Course Transfer / Core Arts and Science Curriculum

The core of the western Canadian transfer model is bilateral course-to-course transfer and by that what is meant is that each transfer agreement is negotiated individually by each sending institution with each receiving institution for each course. The essence is a negotiation between autonomous institutions on a course-by-course basis. Once the transfer credit is negotiated, articulation is maintained over time. As courses change at both sending and receiving institutions, agreements are renegotiated.

A core course-to-course Arts and Science curriculum is a step in Ontario that would require negotiation and discussion. If colleges were to take their specific and program oriented first and second year classes and make them more generalized to university standards, then a core set of classes could be quickly conceived of. Those courses currently taught at the first and second year college level in English, Math, Psychology, and History, if reconfigured to provide a basis for university curriculum in third and fourth year, could open up student pathways and possibilities. Whether students continued further college study or moved to university, a foundation for both would exist that held common meaning in core subjects across the board. This would require collaboration on the parts of both colleges and universities to discuss important course objectives, learning outcomes and bridge and create goals that would suit both college and university needs. Other issues that would need revamping might include instructors' qualifications to deliver courses, content, and standards to be defined by both universities and colleges. Further, a published credit-by-credit model of transfer would require a medium for

distribution (print or electronic) available to students and updated annually.

3. Research University-to-Research University Transfer

Research university-to-research university articulation does not exist in the western province studied for this research. Instead, each institution has been deemed either a *sender* or a *receiver* and the terms are becoming quite out-dated. Institutions are in some cases unwilling to embody both classifications which prevent many transfer equivalencies from being officially posted on the provinces Transfer Guide. Still, equivalencies do exist between universities unofficially and students routinely transfer between research institutions.

In Ontario, university-to-university transfer would be a necessary feature of any course-to-course guide developed for the province. With significantly more universities in Ontario compared to Canada's western provinces, quite a number of transfers occur horizontally every year.

4. Guidelines/Mandate/Council

Identifying what needs to be achieved, who will participate, and the steps that are going to be taken to achieve success are essential. Institutions need to sign off on their role and what they will abide to do in the creation of a coherent transfer system. If this is forming a core Arts and Science curriculum between colleges and universities where students can transfer between university, college, and college-to-university programs within Ontario, then all institutions currently offering such programs must communicate. Each institution must send a faculty representative and chair to meet and discuss learning outcomes, objectives, and what is expected. In the discipline of History, for example, all institutions with history programs would meet with a list of courses taught in year one and two and discuss similarities in courses offered across institutions and identify core classes that would allow a sound transition from college to university, among colleges, and among universities themselves. After consultation and over time a core curriculum and set of courses could be codified and placed into a History Transfer Matrix and published on the Ontario Transfer Guide. Here, all students could have access to the matrix of agreed upon articulations and courses.

Caveats and needed actions to facilitate such a process would include agreements updated yearly and members of the discipline (articulation committee) meeting to discuss changes and concerns. Institutions, more importantly, would need to sign off on and agree to the rules by which these transfers would occur and not stray from them. More importantly, however, such an initiative takes time, resources, and organization and this would need a Council. Articulation Committees are a foundational start, although keeping these committees running and publishing institutions' articulations and posting them would require the work of a group of professionals. This Council would work to alleviate tension and function as a

mediator, produce resources, conduct research to show effectiveness and areas for improvement, and house and organize all articulations.

5. *Improved Research/Evidence of Transfer*

The Council implements policies based on research and therefore evidence and action are continually linked. The research generated by the Council informs new modes of transfer, innovative projects, and provides information on transfer success to universities and colleges in the province. Thus, in Canada's western provinces it is not hard to convince universities that historically transfer students have been successful, because the data speaks for itself.

In Ontario, a research agenda to understand more in depth modes, needs, and advantages/disadvantages of transfer is necessary. Further, research that measures transfer students success compared to direct entry counterparts, tracks movement by institution, and collects data and statistics on new models of transfer is required.

CONCLUSION

Systems of higher education cannot work in isolation from one another; they require the students and structure those around them offer to survive. A history of transfer has proven that all one needs for a foundation to success can be found in a steady look over the fence into a neighbour's yard. Sharing local/global resources and knowledge is of chief importance. Without an understanding of international benchmarks, successes, and failures in the administration of higher education nations risk incompatibility and often lose the appeal of students.

However, as globalization in higher education becomes more commonplace with students moving beyond borders there are further considerations not yet fully examined. The international space in which higher education has moved must be considered beyond the level of logistics. In discussions of globalization and its effect on higher education Altbach (2006) raises a few crucial concerns: 1) trade in higher education is more complicated to codify than consumer goods, 2) the norms, values, language, scientific innovations, and knowledge of countries in the centre crowd out the ideas and practices of those on the margins, 3) institutional autonomy is compromised, 4) developing countries need academic institutions that can contribute to national development, and 5) standardized curricula does not consider the implication of teaching world history in Britain (the British Empire), vs. the United States (the American Revolution), vs. Australia (the Founding Colonies). These concerns represent the path that higher education is creating in stepping its way through the changing economic market to deliver educational services and goods. Each recent development in higher education holds its own place among the complications and compensations of globalization.

REFERENCES

Airasian, P., Gay, L. R., & Mills, G. E. (2008). *Educational research*. New Jersey: Pearson Education.

Altbach, P.G. (2002). Knowledge and education as international commodities. *International Higher Education, 28,* 2–5.

Arnold, C. (2006). *The disparities and despair of transfer credit policies.* Paper presented at the annual meeting of the Crossing Borders Conference. New York, April 6–7.

Arnold, C. & Kompf, M. (2008). Transferable academic credits: Commodity or albatross. In J.Kentel, & A. Short (Eds.), *Totems and taboos: Risk and relevance in research in teachers and teaching* (pp. 113–128). Rotterdam: Sense Publishers.

Australian Department of Education, Science and Training. (2006). *The Bologna Process and Australia: Next steps*, April 2006, Australian Government.

Bleiklie, I. (2007). Systemic integration and macro steering. *Higher Education Policy*, *20*(4), 391–412.

Brennan, J., & Naidoo, R. (2008). Higher education and the achievement (and/or prevention) of equity and social justice. *Higher Education*, *56*(3), 287–302.

British Columbia Council on Admissions and Transfer. (2004). *Transfer in British Columbia: What Does the Research Tell Us?.* Vancouver, BC.

British Columbia Council on Admissions and Transfer. (2005). *Accountability of the BC Transfer System*. Vancouver, BC.

British Columbia Council on Admissions and Transfer. (2009). *The Mandate of the BC Council on Admissions and Transfer*. Retrieved January 3, 2007 from http://www.bccat.bc.ca/about.cfm

Charbonneau, L. (2009). The Bologna conundrum. *University Affairs*. Retrieved April 2, 2009 from www.universityaffairs.ca/the-bologna-conundrum.aspx

Dill, D., & Sporn, B. (1995). *Emerging patterns of social demand and university reform: Through a glass darkly*. Oxford: IAU Press/Pergamon.

Drever, E. (2003). *Using semi-structured interviews in small-scale research* (2nd ed). Oxford: Blackwell.

Duderstadt, J. J., & Weber, L. (2008). *The globalization of higher education*. Glion Colloquium series, no. 5. London: Economica.

Hartmann, E. (2008). Bologna goes global: A new imperialism in the making? *Globalisation, Societies and Education*, *6*(3), 207 – 220.

Jones, G., & Skolnik, M. (2009). *Degrees of opportunity: Broadening student access by increasing institutional differentiation in Ontario higher education*. Toronto, ON: Higher Education Quality Council of Ontario.

Kogan, M., Bauer, M., Bleiklie, I. & Henkel, M. (Eds.). (2006). *Transforming higher education. A comparative study.* (2nd ed). Dordrecht: Springer.

Levin, B. & Steenkamp, P. (2006). *Seamless Pathways Symposium: A Symposium on Improving Transitions from High School to College.* Toronto, ON.

Maslen, G. (2006). Australia faces Bologna threat. *Higher Education Times*. Retrieved April 2, 2009 from www.timeshighereducation.co.uk/story.

Weick, K. (1988). Educational organizations as loosely coupled systems. *Administrative Science Quarterly*, *21*, 1–9.

NOTES

[i] The title of this paper has been modified from the proposed working title presented at the ISATT Conference.

THE RIGHT TO EDUCATION: A NEW FOUNDATION FOR SCHOOLS AND COMMUNITIES

Jude Butcher, Anne Benjamin, Chris Sidoti, Anthony Steel and Dawn Casey

> Never forget where you came from,
> but remember you never have to go back there.

These words of home-spun wisdom from an Aboriginal Australian woman capture the profound change that education has the potential to bring about in the lives of individuals and communities. People aspire to a better quality of life, to move beyond where they are today and leave behind situations which dehumanize them.

Disadvantage, in a myriad of forms, often highly correlates with lack of education, and results in such outcomes as poor health and lower life expectancy; illiteracy and decreased employability; poverty or economic dependence; lack of protection under the law and lack of access to the justice system. Education offers the possibility for individuals and communities to challenge, move beyond and even transform these situations of human limitation.

The right to education must be realized at various levels: international, national and local. It relies on both large-scale measures from governments and school-systems, as well as small measures in local towns and villages, sustained by communities, NGOs, churches and even individuals.

Wherever education occurs, its success will be dependent on a change in attitude and approach "from one of piecemeal handouts for the poor, to one of teaching them how to alleviate their own poverty and be responsible for their prosperity" (Lefevre, 2009). In other words, education must empower people as agents in their own transformation and that of their communities, helping them move beyond today's limitations towards hope and action for a better future.

This paper begins with an examination of the right to education as it exists in international law, highlighting the centrality of this right to the achievement of human dignity. Such dignity stands at the heart of the Universal Declaration of Human Rights and other international human rights instruments. It then moves to a consideration of how effectively the right has been realized in different national and geographic contexts, and for different groups within those contexts. This will be done using data from UNESCO and various national government agencies. Enriched by insights drawn from the experiences of indigenous Australians, the third section explores challenges the right to education poses for governments and

school systems, and the importance of advocacy and effective leverage in meeting those challenges. It reasserts that the right to education is a right of individual human persons.

International human rights law

The definition of the right to education in international human rights law is one of the most specific and most detailed definitions of any human right (See the Universal Declaration of Human Rights Article 26, the International Covenant on Economic, Social and Cultural Rights Articles 13 and 14, the Convention on the Rights of the Child Articles 28 and 29 and the Convention on the Rights of Persons with Disabilities Article 24, among others). It has three principal components, dealing with the aims of education, the substance of the right to education and the process of education. It also provides for quite specific State obligations in relation to the full enjoyment of the right by all. The right to education is a right of everyone, not only of children, though it has special significance for children.

The aims of education

The right to education is one of the few rights defined not only in terms of substantive content but also in terms of aims.

The Universal Declaration of Human Rights in 1948 states four aims of education, being
– full development of human personality;
– strengthening respect for human rights;
– promoting understanding, tolerance and friendship among nation, racial and religious groups; and
– furthering the activities of United Nations for peace (Universal Declaration of Human Rights Article 26.2).

The International Covenant on Economic, Social and Cultural Right*s* in 1966 added two more aims:
– promoting the sense of the dignity of the human person; and
– enabling all persons to participate effectively in a free society.

It also extended the promotion of understanding, tolerance and friendship to ethnic groups in addition to nation, racial and religious groups (International Covenant on Economic, Social and Cultural Rights Article 13.1).

The most comprehensive statement of the aims of education is contained in the Convention on the Rights of the Child.

States Parties agree that the education of the child shall be directed to:
(a)	the development of the child's personality, talents and mental and physical abilities to their fullest potential;
(b)	the development of respect for human rights and fundamental freedoms,

and for the principles enshrined in the Charter of the United Nations;

(c)   the development of respect for the child's parents, his or her own cultural identity, language and values, for the national values of the country in which the child is living, the country from which he or she may originate, and for civilizations different from his or her own;

(d)   the preparation of the child for responsible life in a free society, in the spirit of understanding, peace, tolerance, equality of sexes, and friendship among all peoples, ethnic, national and religious groups and persons of indigenous origin; and

(e)   the development of respect for the natural environment (Convention on the Rights of the Child Article 29.1).

This statement of aims presents a very full view of the scope of education and the important role that education plays in the lives of individuals and communities. It has dimensions that reflect the concern for full human development and the achievement of each individual's full abilities and potentialities. Each person has a right to this kind of education. That means that each person has a right to education that develops respect for human rights.

Understanding the scope of the education to which everyone has a right raises immediate questions about the nature and content of the education provided in schools and other educational institutions. If it is not directed towards the achievement of these aims, then the person's right to education is being violated.

The substance of the right to education

The definition of the right to education contains provisions that relate to each level of education and then more broadly to what is called fundamental education. The nature of the entitlement differs quite significantly according to the level of education but the right to fundamental education ensures a basic level of education for everyone.

In relation to primary or elementary education, the right to education has the strictest provisions. This right is to free, universal, compulsory primary education without discrimination (The Universal Declaration of Human Rights Article 26.1, the International Covenant on Economic, Social and Cultural Rights Article 13.2(a) and the Convention on the Rights of the Child Articles 28.1(a)). A child has the right to primary education and must be compelled to exercise that right.

The right to education requires that secondary education be provided in its different forms, including general, technical and vocational education. Secondary education should be made available and accessible to all by every appropriate means. Free secondary education should be progressively introduced and in cases of need financial assistance should be provided. Secondary education is seen as a universal right. Access to it does not depend on capacity (The International Covenant on Economic, Social and Cultural Rights Articles 13.2(b) and the Convention on the Rights of the Child Articles 28.1(b)).

167

Although technical and vocational education is mentioned in the context of secondary education, the right to education also sees it as distinct, as an element of the right apart from secondary education (The Universal Declaration of Human Rights Article 26.1 and the International Covenant on Economic, Social and Cultural Rights Article 6.2).

With higher education, the limitation of capacity is recognised for the first and only time. Higher education is the only level of education where a legitimate distinction can be made on the basis of capacity. Higher education is to be made equally accessible to all, without discrimination, on the basis of capacity by every appropriate means (The Universal Declaration of Human Rights Article 26.1, the International Covenant on Economic, Social and Cultural Rights Article 13.2(c) and the Convention on the Rights of the Child Articles 28.1(c)).

Having provided in turn for each level of education, the definition of the right to education deals with what it calls fundamental education (The International Covenant on Economic, Social and Cultural Rights Article 13.2(d)). Access to fundamental education is a right for those who have not received or completed the whole period of primary education. It is especially relevant to adults rather than children, which is why it is dealt with in the International Covenant on Economic, Social and Cultural Rights but not in the Convention on the Rights of the Child. However, children who miss out on primary education are also entitled to fundamental education.

The human rights treaties do not define fundamental education. Perhaps the best indication of what it includes can be found in the definition of "basic learning needs" in the World Declaration on Education for All, as "essential learning tools (such as literacy, oral expression, numeracy and problem solving) and the basic learning content (such as knowledge, skills, values and attitudes) required by human beings to be able to survive, to develop their full capacities, to live and work in dignity, to participate fully in development, to improve the quality of their lives, to make informed decisions and to continue learning" (The World Declaration on Education for All Article 1).

The process of education

The right to education affects the process of education directly and indirectly. Because education should be directed towards developing respect for human rights and fundamental freedoms, it should be provided in a manner in which that is possible. The best way to promote respect for human rights is to observe human rights. Educational institutions – schools, colleges, universities and other institutions – should be structured and operated as human-rights-respecting communities, modelling a society with a culture of human rights that operates on the basis of respecting all human rights of everyone. It is a society in which the treatment accorded each person is fully consistent with human rights standards and obligations.

Human rights law has a number of fundamental principles that underpin the way

societies and communities should operate. These form the basis of the process element of the right to education. They include:

– the right to be free from discrimination (The UNESCO Convention Against Discrimination in Education Article 1, the Universal Declaration of Human Rights Article 2, the International Covenant on Economic, Social and Cultural Rights Article 2.2, the Convention on the Rights of the Child Article 2.1, the Convention on the Rights of Persons with Disabilities Article 5, the Convention on the Elimination of Racial Discrimination Article 2 and the Convention on the Elimination of All Forms of Discrimination Against Women Article 2);

– the right to participate (See especially the Convention on the Rights of the Child Article 12);

– the principle of the best interests of the child (The Convention on the Rights of the Child Article 3.1);

– the principle of parental guidance for children in the exercise of their rights (The Convention on the Rights of the Child Article 5); and

– the right to proper treatment, free from exploitation, abuse and neglect (The Convention on the Rights of the Child Articles 31, 34 and 37(a) but also the International Covenant on Civil and Political Rights Article 7 and the Convention on the Rights of Persons with Disabilities Articles 15 and 16).

International human rights law imposes an absolute prohibition on discrimination in the enjoyment of human rights (The Convention on the Rights of the Child Article 5). Discrimination is defined in inclusive terms. Although certain proscribed grounds are listed, they are not exclusive but indicators of the kinds of bases on which distinctions shall be unacceptable and prohibited.

The child's right to participation in school affairs is founded on the broad statement of that right in the Convention on the Rights of the Child.

> States Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child (The Convention on the Rights of the Child Article 12.1).

This provision is one of the most important in the Convention, framing the child's right to participate in relation to all other rights, including the right to education. It requires schools to establish effective means for children's participation, such as school community organisations and school councils, peer education, peer support and counselling, and student participation in school disciplinary procedures.

The next two points in the process of education are based directly on the requirements of the Convention on the Rights of the Child. The principle of "the best interests of the child" requires that in all decisions affecting children the best interests of the child shall be a paramount consideration (The Convention on the Rights of the Child Article 3.1). Under the principle of parental guidance a child has a right, in a manner consistent with the evolving capacities of the child, to

169

appropriate direction and guidance in the exercise of human rights (The Convention on the Rights of the Child Article 5).

The final point in the process of education is the right to proper treatment. Proper treatment in this respect has several dimensions. It includes the right to personal security and integrity, including protection from physical or mental violence – both violence by teachers, and violence and threatened violence by students.

The right to proper treatment extends to proper treatment in school disciplinary procedures. Here most educational institutions are particularly vulnerable to criticism. The simple fact is that most educational institutions operate disciplinary procedures in an informal manner that violates the child's rights in serious ways. School disciplinary, in both public and private schools, must be consistent with human dignity and with human rights (The Convention on the Rights of the Child Article 28.2).The right to education requires good school discipline because children have the right to a safe environment, including at school. However, procedures to apply that discipline must be consistent, clear, fair, reasonable, proportionate and not arbitrary.

State obligations

States bear the principal obligations to respect, protect and fulfil all human rights. They have specific obligations in relation to the right to education. They are required to ensure
– the development of school system at all levels (The International Covenant on Economic, Social and Cultural Rights Article 13.2(e) and the Convention on the Rights of the Child Article 28.1(b));
– an adequate fellowship system (The International Covenant on Economic, Social and Cultural Rights Article 13.2(e) and Convention on the Rights of the Child Article 28.1(b));
– the continuous improvement of material conditions of teachers (The International Covenant on Economic, Social and Cultural Rights Article 13.2(e));
– respect for the right of parents to choose non-government schools, provided those schools meet minimum educational standards and human rights principles, and make education and vocation information and guidance available and accessible to all (The International Covenant on Economic, Social and Cultural Rights Article 13.3 and 13.4 and the Convention on the Rights of the Child Article 29.2);
– measures to encourage school attendance and reduce drop out rates (The Convention on the Rights of the Child Article 28.1(e)); and
– school discipline that is consistent with human dignity and human rights (The Convention on the Rights of the Child Article 28.2).
In relation to the obligation to ensure the development of an educational system at all levels and more generally in relation to State obligations for the right to education, the Committee on Economic, Social and Cultural Rights has identified five attributes of the system that must be ensured:

– Availability: functioning institutions and programs in sufficient quantity;
– Accessibility: within safe physical reach, geographically or by modern technology;
– Affordability: for every child without discrimination;
– Acceptability: relevant, culturally appropriate and of good quality in form and substance; and
– Adaptability: flexible and responsive to culture and needs as they exist and change (Committee on Economic, Social and Cultural Rights General Comment 13 "The right to education" paragraph 6).

GLOBAL PERSPECTIVE: GOALS, ACHIEVEMENTS AND CHALLENGES

This paper turns now to consider some of the challenges that obstruct the realization of the right to education taking a global perspective. What is the reality of the "right to education" as experienced by young people in over 100 countries in 2009?

In 1990, in Dakar in Senegal, the United Nations body, UNESCO, convened a World Education Forum under the theme of *Education for All (EFA)*. Endorsed by 164 governments and partner agencies, the focus of the Forum was explicit: to dramatically expand educational opportunities by 2015 through six key goals that would reach the poorest and most vulnerable. The six goals endorsed by the Forum were:
1. early childhood care and education
2. universal primary education
3. learning needs of young people and adults
4. adult literacy
5. gender parity and equality
6. quality of education.

UNESCO has demonstrated its seriousness in honouring these goals by regularly monitoring their achievement. Unless otherwise indicated, this section of the paper draws largely on *UNESCO EFA Global Monitoring Report 2008* (UNESCO, 2007)*,* the sixth report on their progress, and will briefly summarize progress in each goal area. Some comments about the Australian context are presented so as to show the issue of inequalities within developed as well as developing nations.

Achieving Goal 1: early childhood care and education (ECCE)

In 2005, nearly 10 million children under five died for want of basic hygiene, food and sanitation. They were 10 million children who died unnecessarily. International research suggests that birth to five years is the time of most rapid cognitive development, a time when children's brains are "primed for learning". Cognitive development is linked with the quality of food, nutrition and health. Consequently, contemporary national policies are giving greater priority to early childhood care and education (for example: Australia, USA). In the 129 developing countries, one in four children under five years of age is affected by under-nutrition and

malnutrition. This, of course, makes them more susceptible to illness, less likely to enrol in school and less likely to complete school.

Around the world there have been gains. Child mortality rates have dropped from 92 per 1000 in 1995 to 78 per 1000. However, early childhood care and education generally do not reach the poorest and most disadvantaged where the impact would be greatest and only 53% of countries have official ECCE programs. Countries across sub-Saharan Africa and the Arab States have increased their provision of ECCE, but still fall well behind most other areas.

Achieving Goal 2: universal primary education

By 2008, UNESCO described the progress in universal primary education as having made "rapid strides" but not yet close. With the exception of those countries experiencing fertility declines (North America, Western Europe, East Asia), primary school enrolments increased with sub-Saharan Africa increasing enrolments by 40%. Ninety-five percent of 203 countries/territories now have compulsory education laws, but there are disparities within countries (even more developed countries) and between states & regions.

It is encouraging that the number of primary-school aged children who are not in school has declined from 96 million in 1999 to 72 million in 2005. Thirty five "fragile" states account for 37% of all out-of-school children. In the Arab states, 60% of the out-of-school children are girls; in South and West Asia (which includes countries such as Afghanistan and India), 66% of the out-of-school children are girls. Enrolment must also consider retention, with the "survival" rate of children remaining in school through to Year 6 ranging from 50% − 98%.

In seven countries, having a disability reduced by 50% the likelihood of a child being in school. The UNESCO report concludes that "on current trends, fifty-eight out of eighty-six countries that have not yet reached universal primary enrolment will not achieve it by 2015."

Achieving Goal 3: learning needs of young people and adults

For many disadvantaged youth/adults in the world's poorest countries, non-formal education is the main educational pathway. Overall, UNESCO reports that non-formal education programs lack public funding, though it is encouraging to note countries developing national frameworks for this group.

Achieving Goal 4: adult literacy

The *EFA* commitment in 1990 focussed on "achieving a 50 per cent improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults." This commitment was based on the

recognition, not only that literacy is a fundamental human right, but is also directly linked to reducing poverty and empowering an individual's participation in society.

The report card for adult literacy in 2008 reads as follows: conservatively, 774 million adults worldwide lack basic literacy; of these, 64% are women. It is no surprise that the highest rates for illiteracy are found in the countries with greatest poverty. In fact, more than three quarters of the world's illiterate adults live in just 15 countries. There has been little progress in increasing the rate of adult literacy over the past ten years – a shift from 68% to 77% between 1985-1994 and 1995-2004, and even this increase is distorted by improvements in China where the number of adult illiterates dropped by 98 million.

Achieving Goal 5: gender parity & equality

The report here is simple and stark: gender inequalities prevail. As indicated in the previous section under adult literacy, globally, there are 89 literate women for every 100 literate men. Within countries and regions, there are also disparities, for example, South and West Asia (67 literate women for 100 literate men), Arab states (74:100) and sub-Saharan Africa (76:100).

However, stressing the achievements, 63% of countries have now achieved gender parity in primary education; with a much lower figure of 37% for secondary education. This equates to 59 countries achieving gender parity at both primary and secondary levels. It should be noted that the gender inequalities in secondary schools can favour girls as often as boys. However, the urgency of ensuring equity of access to education for girls is critical, given their role in the health and nutrition of the next generation and the impact we have already seen on children's participation in education.

Achieving Goal 6: quality of education

The generic obstacles that impact the quality of education are similar in all countries: appropriate physical facilities; adequate time on teaching; appropriate text books and resources; adequate supply of well-qualified teachers. All of these need to be facilitated and supported by strong national policy, educational goals and management.

It is useful for those from more developed countries to recognize the strengths of their own systems in light of the specific obstacles challenging quality education in the poorest countries: poor physical facilities; inadequate time on teaching; lack of text books and resources; an uneven and inadequate supply of well-qualified teachers; unevenly developed national policy, educational goals and management; widespread low achievement and achievement disparities within countries.

One of the most critical factors, however, remains that of teachers. If the world community is to realise the EFA goals, 18 million new primary school teachers will need to be found and trained. As country populations increase and as nations

implement a higher rate of education for all, the demand for teachers will continue to outstrip the supply. In addition, in the face of a shortage of teachers, the gains of increased enrolment are compromised by the use of untrained contract teachers.

A human face of the right to education

Of course, it is possible to read such global-focused overviews, and yet lose sight of the fact that human beings are central players in the right to education and its realization. Governments, school systems and communities make decisions and implement educational policies which impact upon individuals, and thereby enhance or hinder human dignity and well-being.

It is essential for educational administrators and teachers to be aware of the possible consequences their decisions and actions can have on the quality of life of individuals, both now and in the future. This is, if you like, the micro level at which the right to education needs to be guaranteed. A case study, drawn from the experiences of an Australian Aboriginal woman, serves well to highlight the points being made here.

We pick up her story in an Aboriginal "mission" near Cairns, Queensland in the 1960s. Dawn was one of six children. Both her parents were indigenous Australians who saw the value of education. They made sure that the children went to school, and that one boy with Down Syndrome attended a sheltered workshop. But they did not know how to work in and around the bureaucracy and regulations of the education system, and so were educational advocates "on the outside", for their children. The expectation and discipline they structured for their children and the formation in values they provided was a powerful informal education which was to have long term benefits, especially for Dawn.

Entering high school in the mid-1960s, Dawn was a bright student, in the top quartile of her class. The school was streamed, and all the indigenous students found themselves placed in the same class, along with a few other non-indigenous students. There were no indigenous students in other streams of her year group.

When it came time for subject selection for the later years of high school, Dawn wanted to choose to study a language, which was part of a pathway for entry to higher education. However, she was told that language was not an option for her class, who would instead be taking subjects such as short-hand, typing and domestic science.

For the indigenous students in this year-group, future options were automatically limited not by aptitude or performance, but by the administrative decisions which established an educational structure which *de facto* excluded indigenous students. For Dawn, such decisions had not only immediate effects, but also shaped her options in ways that would surface years into the future.

Underlying these structural arrangements were certain social preconceptions about indigenous students, for example, that they would not aspire to higher education; that they needed to study subjects that equip them to find a job; that what they "wanted" was irrelevant. Such attitudes served to reinforce the low self-esteem

indigenous students often came to school with. Labeled covertly and sometimes overtly as non-achievers, they found little at school to inspire hope for the future, and many failed to finish high school with any recognized credential. As a result, the personal, economic and social opportunities open to them were narrowed.

After leaving school, inspired by her mother's insistence on the importance of education, Dawn completed a course at business college at a level equivalent to grade 12. She gained employment in a number of government positions, but because she did not have the officially recognized certificate from the school system, she was not able to gain a permanent appointment. However her innate abilities, her passion for advocacy for indigenous Australians and her ability to get things done saw her appointed to many positions of national significance including, eventually, inaugural Director of the National Museum of Australia, and currently Director of the Powerhouse Museum in Sydney, Australia.

One of Australia's leading radio interviewers captured in understatement the significance of her achievement when he referred to her as "…an Aboriginal girl from North Queensland who improbably made good" (Lane, 2003). The improbability he refers to was partly the result of a school and school system's failure to recognize and honour the right to education by adequate provision and access to educational opportunity.

For Dawn the right to education of indigenous students in Australia today remains to be fully realized. The personal, social and economic legacy of the Stolen Generations[i] continues to impact upon Aboriginal students, who still need additional support even just to access education effectively. Interventions need to begin much earlier (for example, pre-school) and to include supports for well-being (for example, breakfasts at school) to allow them to function optimally in the school setting.

Unfortunately, in the last ten years or so, the range of supports for indigenous students has been reined in. Access to additional tutoring remains inadequate and, at tertiary level, allowances to facilitate greater indigenous access to technical and higher education have not brought about desired increases in indigenous enrolments and participation.

As a grandmother, Dawn seeks to pass on to her grandchildren the same respect and desire for education as she received from her mother. Now recognized as a leading public figure in Australia, she has the financial wherewithal to provide them with enhanced educational opportunities which were not available to her. In her view, the "catch up" needed by Aboriginal students is not adequately offered in public schools. Additional resources are still needed to ensure they get the learning opportunities and pastoral care they need in order to progress and achieve in the school system as it exists today.

A new foundation for schools and communities

Throughout this paper, the right to education has been seen as a basis for personal and social transformation which will improve the quality of life for children and

adults in a variety of social, economic and cultural contexts. When realized, the right to education offers people the possibility to move from disadvantage to hope, from victim to agent. When realized, the right to education empowers people to act on their own behalf, for their own well-being and that of their families and communities.

By surveying elements of the right to education at the global systemic and national systemic levels, and by considering the right to education at a particular local level, we have identified some of the achievements and some of the obstacles that remain in realizing the right to education.

Prejudice and lack of access on the basis of gender and race, in particular, present strong challenges to the right to education in many societies, and in some "underdeveloped" nations compound the economic problems and lack of social infrastructure which limit the provision of education generally. In this regard it is interesting to note that international law recognizes certain groups have been subjected to historic discrimination and disadvantage. Temporary special measures may be needed to address the legacy of that disadvantage so that members of these groups may enjoy all their human rights on the basis of equality with others (The Convention on the Rights of Persons with Disabilities Article 5.4, the Convention on the Elimination of Racial Discrimination Article 2.2 and the Convention on the Elimination of All Forms of Discrimination Against Women Article 4).

National governments and school systems have the responsibility to provide the opportunities, resources and structures essential for the right to education to be realized. In their planning and implementation, priority must be given to the five system attributes identified by the Committee on Economic, Social and Cultural Rights and referred to earlier in this paper:
– Availability: functioning institutions and programs in sufficient quantity;
– Accessibility: within safe physical reach, geographically or by modern technology;
– Affordability: for every child without discrimination;
– Acceptability: relevant, culturally appropriate and of good quality in form and substance; and
– Adaptability: flexible and responsive to culture and needs as they exist and change (Committee on Economic, Social and Cultural Rights General Comment 13 "The right to education" paragraph 6).

School systems which deliver these for students and communities are well on the way to recognizing and making realizable the right to education.

Of course, actions to support and promote the right to education need to be undertaken not just at national and system levels, but also by teachers, administrators and teacher educators at the local level. Those who work in education need themselves, to be educated with regard to the right to education. They need to understand what the right actually entails, be able to identify impediments to its achievement, and most importantly be equipped with the knowledge and skills that will allow them to contribute to its realization in the lives of the individuals and communities they serve. There are implications here for pre-service teacher training, as well as on-going professional development for classroom practitioners,

complementing subject content and methodology with a broader understanding and appreciation of the role educators and education can play in empowering people and communities for personal and social transformation.

Perhaps, too, in these times of increasing globalization, a more active role is to be envisioned for the worldwide educational community. Content, methodology, technology, ideology and other issues are and will remain matters of vital and valid concern for educational conferences and for professional bodies such as ISATT. However, all these concerns must be subordinate to the moral purposes of the educational enterprise, and to the greater well-being of the individuals and communities towards whom education is directed. By becoming an advocate for the right to education and using its leverage to influence nations and school systems towards enhancement of educational provision and access for all, bodies such as ISATT may speak affirmatively not merely as an education specialist but as an agent of hope.

REFERENCES

Committee on Economic, Social and Cultural Rights General Comment 13 "The right to education" paragraph 6. United Nations. (1999).

Convention on the Elimination of All Forms of Discrimination Against Women. United Nations. (1979).

Convention on the Elimination of Racial Discrimination. United Nations. (1965).

Convention on the Rights of Persons with Disabilities. United Nations. (2006).

Convention on the Rights of the Child. United Nations. (1989).

International Covenant on Civil and Political Rights. United Nations. (1966).

International Covenant on Economic, Social and Cultural Rights. United Nations (1966).

Lamb, S., & Mason, K. (2008). *How young people are faring 2008*. Retrieved from http://www.fya.org.au/downloads/FYA_HYPAFReport_ONLINE_68pp.pdf

Lane, T. (Presenter). (2003). *Dawn Casey and the National Museum*. Retrieved from http://www.abc.net.au/rn/talks/natint/stories/s1003297.htm

Lefevre, P. (2009). *Center teaches entire families in Ecuador.* Retrieved from http://ncronline.org/news/global/center-teaches-entire-families-ecuador

Ministerial Council on Education, Employment, Training and Youth Affairs, and Curriculum Corporation. (2006). *Australian Directions in Indigenous Education 2005–2008.* Carlton South: MCEETYA.

Reconciliaction Network. (2007). *Stolen Generations Fact Sheet.* Retrieved from http://reconciliaction.org.au/nsw/education-kit/stolen-generations/#forced

UNESCO. (1990). *World Declaration on Education for All.* Retrieved from http://www.unesco.org/education/efa/ed_for_all/background/jomtien_declaration.shtml

UNESCO. (1960). *Convention Against Discrimination in Education.* Retrieved from http://www.unesco.org/education/pdf/DISCRI_E.PDF

UNESCO. (2007). *Education for All by 2015 Will we make it?* Retrieved from http://www.unesco.org/en/education/efareport/reports/2008-mid-term-review/

UNESCO. (2007). *Education for All by 2015 Will we make it?* Retrieved from http://unesdoc.unesco.org/images/0015/001548/154820e.pdf

Universal Declaration of Human Rights. United Nations. (1948).

Velkoff, V. A. (1998). *Women's Education in India.* Retrieved from http://www.census.gov/ipc/prod/wid-9801.pdf

Vinson, T. (2007). *Dropping off the Edge. Mapping the Distribution of Disadvantage in Australia.* Melbourne: Jesuit Social Services & Catholic Social Services Australia.

CHAPTER 12

NOTES

i   "The forced removal of Aboriginal and Torres Strait Islander children from their families was official government policy from 1909 to 1969. … The generations of children who were taken from their families became known as the Stolen Generations. … the practice of forced removal was highly traumatic not only for the children but also for their families. The policy broke important cultural, spiritual and family ties which crippled not only individuals, but whole families and even whole communities." (Reconciliation Stolen Generations Fact Sheet)

COSMOLOGIES AND LIFESTYLES: A CULTURAL ECOLOGICAL FRAMEWORK AND ITS IMPLICATIONS FOR EDUCATION SYSTEMS

Phil Bayliss and Patrick Dillon

INTRODUCTION

This paper opens with a critique of the majoritarian, post-Enlightenment, scientific worldview, the assumptions it makes about human cosmologies and lifestyles and how, in turn, these assumptions influence the nature of educational systems. The critique focuses on how the experiences of minority cultures, particularly those cultures that are nomadic or pastoralist, challenge some of the fundamental premises of majoritarian education. There follows a cultural ecological framing which compares the ways in which western (majoritarian) cultures and minoritarian cultures contextualise education. In western educational situations, structures, contexts and schemata are substantially pre-defined, and we talk about things as 'context-dependent', since context is something that can be described as the backdrop to behaviour. In minoritarian cultures both meaning *and* context emerge from people's interactions with their environments and may *subsequently* be described. These are respectively *relational* and *co-constitutional* manifestations of situations. The manifestations are different, not oppositional or mutually exclusive. We present an ecological framework in an attempt to simultaneously embrace both interpretations.

COSMOLOGIES AND LIFESTYLES

Our concern is not with the scientific character of the sciences but rather what the sciences in general have meant and could mean for human existence. The exclusiveness of the scientifically orientated modern worldview and the apparent 'prosperity' it has produced has led to a general indifference to questions which are fundamental for a genuine humanity: "Merely fact-minded sciences make merely fact-minded people." (Husserl, 1970, 5-6).

The modern worldview (or cosmology − Bayliss, 2009, 34) grew out of the "Enlightenment conviction of the progress of human knowledge, rationality, wealth, civilization and control over nature with which the eighteenth century was deeply imbued... the 'Enlightenment' drew its strength primarily from the evident

progress of production, trade, and the economic and scientific rationality believed to be associated inevitably with both... A secular, rationalist and progressive individualism dominated 'enlightened thought' (Husserl, op cit, 34).

Husserl (1970, 10) describes 'the ardent desire for learning, the zeal for a philosophical reform of education and of all humanity's social and political forms of existence, which makes that much-abused Age of Enlightenment so admirable'. The drive for rationality which has underpinned the material progress of western nations and the education systems associated with it have developed into the 'globalisation project' of late-modern capitalism which is now exported worldwide (Steiner-Khamsi & Stolpe, 2004).

The World Bank, as the chief proponent of a 'globalised project' in education, has 'preconditions' which can only be understood as an ideological stance in promoting an integrated world economic system along market lines. This 'ideal economy' has associated with it a particular form of public education which is managed by centralised or state governments and allows little room for the flexibility that leads to effective learning (World Bank, 1995, 3-6). It is an economy in which 'educational priorities should be set with reference to outcomes, using economic analysis, standard setting and measurement of achievement through learning assessments (World Bank, 1995, 8; Jones, 1998, 152).

In such an approach to educational development the role of government is not to support or promote cultural or national identity but to provide accountability (Jones, 1998, 153; Steiner-Khamsi & Stolpe, 2004; Carnoy 1999). Dyer (2001, 325) argues that State oversight, but not centralised control, determines the nature of schooling itself: "choices about curricular content, language of delivery and the delivery mode itself prioritises not only whose knowledge counts, but also the forms of learning." Does schooling thus genuinely prioritise individual empowerment, as the rhetoric promises, or work more effectively towards socialising people into becoming docile citizens of the nation state (Foucault, 1971).

This 'normative hegemony' (Meyer, 1996) finds its clearest manifestation in the 'Education for All Initiative' (WECFA, 1990, UNESCO, 2009) which aims to provide "An education of high quality... [which] means that individuals will develop their potential... education will make a difference to the chances they have in life. In society as a whole, quality education supports positive social change. It will enable people to progress through effective learning outcomes... gaining the knowledge, competencies, skills and behaviours which are essential for development." The language of 'potential', 'positive social change', 'effective learning outcomes', 'competencies', 'skills and behaviours', all tied to concept of development, presuppose a set of theories and models for learning.

Sfard (1998) characterises the models in two metaphors: the 'acquisition metaphor' and the 'participation metaphor' . 'Acquistion metaphors' describe the transmission of knowledge from the expert to the novice. This is determined by a set of social practices which see the teacher as 'pedgogue' (determining both curriculum and outcomes of the learning process, where 'outcomes' are seen as the acquisition of concepts.). The 'participation' metaphor is grounded in socio-cultural theory, which sees the learner as being a member of a community of practice, and the role

of the teacher is that of 'androgogue', where the nature of learning is seen as a dialectic emerging from interactions between the lerner and opther significant others (experts/novices) (Sfard 1998, 6) . McGuinness (2005) develops a more nuanced approach to the issue of 'metaphor' (see Table 1).

However, the issue here is that all of these theories and models presuppose (i) an identity for the learner (and teacher) as autonomous, and (ii) that the nature of the context or community that the learner finds him/herself in, is given or pre-specified. Thus the rationality of Enlightenment thinking produces theories which characterise the learner and the context of learning as separate, but related. Learners either acquire knowledge as pre-given, or are inducted into a regime of knowledge, which is pre-formed by 'experts'.

Table 1. A multi-level view of 'theories' of learning (McGuiness, 2005, 34)

Metaphors for learning	Acquisition			Participation
Conceptions of learning	as receiving information	as construction	as social construction	as participation
More specific theories	folk	as active information processing	as socially mediated	In communities of practice
		as becoming expert in a domain	as internalized language	in socio-cultural activities
		as developing conceptual structures	as dialogic enquiry	as mediated by cultural artifacts
		as developing epistemological beliefs as mindful self regulation	as distributed cognition	

In the case of nomadic or pastoral herding populations, the 'Education for All' initiative, as an ideological notion, fails because it reflects values that contradict those of nomadic groups (Dyer, 2001; Kratli, 2000; Kratli 2001a and b). 'Nomads traditional occupation of animal husbandry has allowed them to thrive outside the confines of a modern political state, and they have carved out a unique economic

niche through their ability to exploit marginal resources ill-suited to agriculture' (Dyer, 2001, 371). However, this is to view 'nomadism' through the western lens and to think of nomadism in purely economic terms. Pastoralism is not just an economic way of living; it is a way of life: (a)lthough the main characteristic of all varieties of mobile pastoralism, in my opinion, is their specific economic specialization, it would be foolish to deny that this very specialization involves specific lifestyles, world views, cultural values, preferences and ideals. Pastoralism is not only a way of making a living; it is also a way of living." (Khazanov, 1994, xxxiii.).

Kratli (2001a, 7) argues that for pastoralism generally:

> It is widely accepted among specialists that mobile pastoralism is among the most economically effective uses of very large areas of land in some of the poorest countries, and that such pastoralism only succeeds because of extremely high levels of both individual and social specialization. Nevertheless, formal schooling marginalizes and often ridicules both the technical knowledge upon which pastoralism is based and the social relationships and institutions (or social capital, in the sense of social norms, networks and relationships of authority) in which it is embedded and which underpin it. Consequently, although formal education may successfully prepare nomad children for new forms of livelihood outside pastoralism, virtually everywhere formal education is antagonistic to a pastoral livelihood.

The cosmologies of Fourth World peoples (a phrase which derives from Pentikainen, 2006), situated predominantly with the Arctic region in the north, challenge 'Enlightenment' approaches to understanding knowledge and learning. (see also Humphrey & Urgunge, 1996 in the context of Mongolia, which Pentakainen also includes in the Fourth World). In a Fourth World cosmology, knowledge is not just seen within rational understandings (Logos) as something to be acquired:

> The assumption that knowledge is acquired only through human reason may be predicated upon the worldview that primary experience is physical or empirical and that other experience are secondary. An extreme interpretation of this is that all spiritual reality is simply an imaginary creation of the human mind. All extraordinary human experience that cannot be explained by empirical means are mere delusions or figments of human imagination.(Atleo, 2004, xv).

Atleo argues that 'Fourth World' cosmologies find resonance in modern theories of chaos (see Gleick, 1988) and complexity (see Coveney and Highfield, 1995)) and challenge dichotomous (Cartesian) cosmologies founded on a separation of mind and body (the relational and the material, which has no place for the metaphysical). Atleo refutes the Cartesian duality of mind-body in his theory of Tsawalk (a Canadian First Nations (Nuu-chah-nulth) word which means 'everything is one', Atleo, 2004, 117ff). Further, within a Buddhist tradition (Levitt, 1999) a

religious education is more concerned with the acquisition of wisdom, rather than knowledge, and is concerned with the understanding of 'emptiness' – the common 'core' of existence of which the present human identity of 'personhood' is but a transient manifestation. In Buddhist thought, the spiritual domain underpins all knowledge. Levitt, (ibid, 95), in her discussion of the Tibetan Buddhist concept of 'wisdom', locates the acquisition of 'wisdom' in the Buddhist understanding of reality, the importance of altruism and the process of self-examination in gaining wisdom. Wisdom is not acquired by individuals, but is embedded in the assistance of others (especially the teacher ('Lama', 'Geweshe'). To acquire wisdom is to have "… a monastic education, a supportive family, friends, communities and teachers… through the influence of others, individuals [were] thought to learn their behaviour, morals and values. The roles of others [are] seen as necessary both to cultivate intelligence and wisdom and to provide behavioural guidance.".

This tradition is based on sutras (religious texts) – the interface between the literate and the oral (what Ze, 1995 describes as 'sedimented oracy'). The usual didactic is that the child learns Tibetan characters and reads the texts in Tibetan while learning some of them by heart. At the beginning this happens *without* knowing Tibetan language. The concept of learning by heart is thought to be useful as it leads to internalisation, and internalisation is seen as a precondition to 'dive' into the concepts (Stolpe, 2008). Once the child has assimilated the analytic knowledge contained in the word, the child then enters into dialogue (through debate with the teacher and classmates – Levitt, 1999) to develop the understanding of the word in order to develop wisdom. Wisdom is not contained in the sutras, in the logos, in the word; the lama provides the performance of the knowledge to bring into wisdom. Wisdom comes out of the performance, in conjunction with the lama. The teacher provides the performative action to bring the knowledge into being (scaffolding, blossoming, unfolding, etc) (Dillon et al, 2009). This process is not contained with the 'metaphorical' typology of western schemas (see table 1 above).

This Lamaist tradition of 'sedimented oracy' (Ze, 1995) depends on written texts which are designed for memorization and recitation. Learning within this style of '*gegeerel*' (Mongolian: 'to bring into enlightenment') is (following Ong, 1982) essentially oral (as opposed to literate), and it is additive, aggregative, redundant, conservative, close to the human lifeworld, agonistically, empathetic, homeostatic and situational. Its aims are to 'let children become civilized with moral integrity'.

In Fourth World cosmologies, the spiritual underpins a theory of knowledge (Atleo calls this 'Ossumich' – Atleo, 2004, 84ff), where the physical and spiritual realms are interdependent. Pentikainen, (2006, 49) describes Fourth World (Artic) shamanistic practices of the acquisition of wisdom in Sami people, which require initiation into a 'grammar of mind' . 'We could speak of about a special 'grammar of mind', typical of shamanism. It means competence in certain shamanic folklore repetoires. Specifc skills in performing ritual acts, knowledge of the 'shamanic language' and the rules of the generic and ritual ' grammar' observed not only in shamanic sessions but in the behaviour and everyday life of this kind of society'. The alternative cosmologies challenge the accepted metaphors of the 'acquisition' or 'participation' metaphors'.

A CULTURAL ECOLOGICAL CONTEXTUALISATION

In his book *We Have Never Been Modern*, Bruno Latour claimed that pre-modern people wove everything – animals, tools, medicine, kin, plants, songs, weather – into an immense collective matrix of mind and matter. Nothing in this web can be neatly divided between nature and culture; instead the matrix is composed of hybrids, 'speaking things', which are natural and cultural, real and imagined, subject and object (Latour, 1991). The assumption is that we no longer think this way today because we are modern – and modernity is partly defined by the enormous conceptual distinction erected between nature and culture out of which knowledge has been developed and applied and educational systems have evolved. Within Enlightenment modes of thought, 'nature' is something to be manipulated through mastery. It will be apparent from the arguments made in the foregoing section that we want to challenge this assumption.

For sure modernity has given us science the pursuit of objectivity, understanding of the way things are . From this economic prosperity for a few has emerged. Modern education helps as develop sophisticated knowledge and skills. But the 'hybrids' that Latour speaks of, the things that come out of interactions between nature and culture, still exist. We may know things about our environment; we may be able to explain, for example, how photosynthesis works, or the problem of climatic change. But in addition we still have an intuitive relationship with our environment, of the interconnections within it and our place within the interconnections. This aspect of education has been neglected in the majoritarian system.

Our perspective is from cultural ecology (see also Dillon, 2008b). Cultural ecology is about relationships between people and their environments, about how they interact and transform each other. Environment is more than just physical surroundings. Environment includes social relations and the collective capabilities of all the people who inhabit it – their lifestyles, beliefs, ideas and aspirations. Educationalists call these aspects of the environment the affective and conative – respectively the way people feel in their environment and the way they respond to it.

In the so called modern world (perhaps better characterised as the 'formalised world') knowledge is organised into domains, bodies of disciplined knowledge which can be acquired, practiced, and advanced. Working with disciplined knowledge necessarily involves discerning what is important from what is not, and the skilful use of the tools and techniques that are available. In a broad sense, educational systems have co-evolved with the growth of modern knowledge and reflect the values embodied within it: the academic separation of 'pure' knowledge from 'applied'; the orientation of learning towards 'received wisdom', which is typically embodied in textbooks or handed down by teachers (Dillon, 2008a). We call this *relational* education. Relational education in cultural ecological terms is where situations are defined relative to each other (e.g. through separate disciplines), behaviour may be predicted (e.g. by setting objectives) and understanding is part of a historical continuum which recognises a past, a present and a future. Relational education places great emphasis on conceptual understanding, the cognitive dimension of learning.

However, recent work on consciousness suggests that the human mind works in complex and dynamic interaction with the environment where meaning is fluid rather than fixed and information is integrated with experience in processes that involve the continual construction, deconstruction and reconstruction of knowledge (Damasio, 2000; Edelman & Tononi, 2000). This allows knowledge to be viewed as a set of possibilities rather than a fixed entity that can be transmitted in linear form. This provides the possibility of an additional way of interacting with our environment, a co-constitutional way. In co-constitutional transformations, situations 'emerge', behaviours and environments co-construct each other, and things happen 'in the moment'. An education that recognises these types of interaction might be called *co-constitutional* education.

Cultural ecology is concerned with interactions between the behaviour of people in the environments which they inhabit and how these interactions transform both the people and the environment. The interactions in most formal educational institutions like schools and universities are relational. They depend on the transfer of established constructs within defined structures. Ideally, educational transformations should be both relational and co-constitutional when they can facilitate both conceptual and perceptual understandings and the connections between them. The co-constitutional aspect of education would recognise personal 'in the moment' experiences. Taken together, the relational and the co-constitutional offer a vision of learning in an ecological sense: meaningful ways of relating personal, 'in the moment' experiences to historically established practices and ways of knowing. This vision reflects the integral relationship between nature and culture. Thus learning in a cultural ecological sense is also an *integrational* form of education – integrational between people and the places that are important to them.

It follows from the arguments made above that the educational separation between school and home in the majoritarian culture is unfortunate. Similarly, the distinctions between academic and vocational and formal learning and informal learning are damaging. Education is too reliant on narrowly defined courses. Learning is often fragmented, superficial, and repetitious. A cultural ecological approach to learning would provide people with frameworks in which they can locate themselves and their experiences. Some experiences will be in formal situations, others informal; some in the home, some in the workplace. Some experiences may overlap; all will connect in some way with other experiences. Each experience relates to a personal story. And, in turn, each personal story relates to the story of humanity.

Experience is the means by which learning happens. Information is sensory raw material. People interact with information through experience and learning. Consider what happens when an individual encounters a new situation. He or she experiences the sensory stimuli available, some consciously, some unconsciously, and 'makes sense of it', that is, he or she establishes meaning. The processes through which this happens can be summarised in the following diagram:
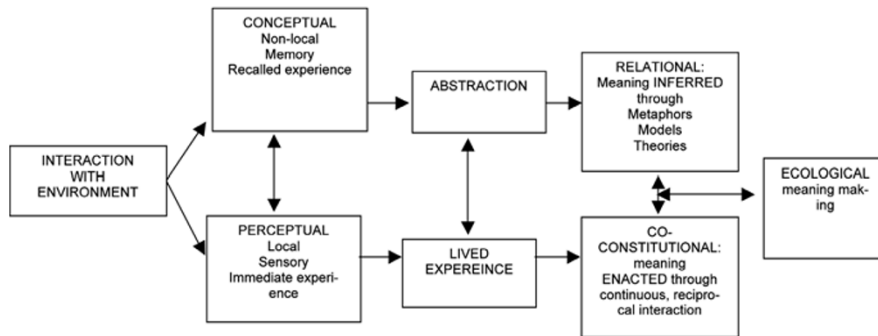
Figure 1. An ecological view of learning

The whole process represents an ecological view of learning. Note that all of the parts are interconnected. Representing the parts as a diagram is an analytical device to help understand what is going on. In practice all of the things represented in the diagram are happening simultaneously. When an individual encounters a new situation, when he or she 'interacts with that environment', there is a constant interplay between the conceptual, where the individual relates the new experience to what is already known, and the perceptual, the 'in the moment' engagement with the environment.

Another way of looking at this is as the interplay between abstraction and lived experience. Abstraction is relational, we drawn on metaphors, models and established ways of thinking about things and we engage with familiar ways of doing things. Lived experience is co-constitutional, we are trying things out as they happen, literally enacting situations and sometimes unexpected things emerge.

The relational and the co-constitutional are themselves constantly reforming each other, which is why learning is a complex process. It is complex because there are predictable things that can be said about it, but at the same time there is a degree of unpredictability that comes through the emergent possibilities of the situation.

Educational institutions like schools and universities, and educational researchers in the majoritarian culture, concentrate almost exclusively on the relational part of learning, on the objective, conceptual type of meaning established through experience. Little attention is given to how this 'objective' experience interacts with the very personal type of meaning which comes from 'in the moment' engagement, the 'lived experience', the meaning enacted through continuous, reciprocal interaction with the environment.

Lived experience is at the core of Bruno Latour's matrix, and lived experience is very much involved with meaning making in minoritarian cultures. Consider, for example, the following account of meaning making in Hawai'i:

> The native way of storymaking is an intellectual tradition that is articulated
> in a variety of texts... in Hawaiian art and craft, and in Hawai'i's poetry and

folklore. The work of the storymaker is to re-collect and re-collect events, then reflect on the events' multiple meanings, both personal and public and within their time and across time. This reflection extends the mind to not only what is known, but to what is surprising. Kaoma is the goal here, that is to tolerate ambiguity and shifting meanings in order to come to truth. As all things in Hawaiiana are practical, the process of storymaking presses the storyteller to make sense of these multiple thoughts within a current context; that is, to consider the political, the social, and the cultural. Once these thoughts are framed and articulated in a text, the storymaker must encourage – even propose – action. (Benham & Heck, 1998).

But the relational and co-constitutional are also evident in contemporary western society. For example, Michael Boyd, Artistic Director of the Royal Shakespeare Company and Oliver Sachs Professor of Neurology and Psychiatry at Columbia University have been looking at how actors memorise their lines. They investigated a situation where actors returned to a set of plays after a gap of six months:

The process started with actors on their own going through their lines. They didn't remember them. We then moved on to working together in a room, sitting down doing a line-run. It wasn't very good. Then we decided to cut to the chase and just fling all four plays onto the stage – without costume, without decor, without all the effects. And the actors were very nearly word-perfect straightaway... And there was further improvement when they were not only together on stage, but also together with an audience. Then they became absolutely pitch-perfect and word-perfect, with an urgent need to communicate... Maybe our memory is our body as well as our cranium. (Times Online)

Sachs interprets this as actors 'trying to retrieve a broken bit of memory'. An alternative interpretation is the interplay between the relational and the co-constitutional, the enactment of conceptual schemas, or learning in a cultural ecological sense. In both this and the Hawaiian example immediate experience is interacting with recalled experience, the abstract and the lived are co-constructing each other. Learning has and always will be an ecological process. In this sense there is no distinction between 'pre-modern' and 'modern', 'traditional' and 'formalised', it is only contexts that change.

The relational view of context that characterises the majoritarian culture, where situations, structures and schemata are defined relative to each other, inevitably, this leads to a degree of pre-specification for given situations relative to social institutions, which in a structural sense are enduring, even if their internal dynamics are subject to frequent change. For example, the Western notion of a 'school' is built around physical and organisational infrastructure such as classrooms, curricula, pedagogies, examination systems and so on. For Mongolian nomads, the 'school', embodying the values of a sedentary culture, is seen as parallel to, and co-existent with, nomadic culture. The nomadic cosmology of the Daur people of

north-eastern Mongolia (Humphrey & Urgunge, 1996, 76) is not related to abstract thinking about a world which can be separated from the self (and therefore transmitted through a school curriculum), but derived from… 'direct personal engagement with objects and processes', from different ways of engaging with the world as 'landscapes'. This situates humanity in many versions of the world, as it were 'slatted' over one another, each one elaborated and extended in such a way as to offer different causal understandings of human society and personality. Thus, conventional social divisions are not the only means of differentiation; people, individually and collectively, are likenesses of the world outside (Humphrey & Urgunge, 1996, 105).

Where tensions exist in the West between 'education' and 'becoming human', the Mongolian experience suggests a possibility of reframing the educational process as one of a 'journey in a landscape', rather than as a 'journey through a landscape' If we follow the example of the Daur people of North-eastern Mongolia (Humphrey & Urgunge, 1996, 105), who are situated in 'many versions of the world', then engaging through the 'divisions of the world' through likenesses could 'supersede those generated by purely social rules of identity, membership and succession'. We would like to see a relational and co-constitutional framework which is itself both relational and co-constitutional. In other words, an approach to education in both majoritarian and minoritarian cultures that is not 'impositional' nor 'transitional', but rather ecological in the sense that it is locally adaptive giving rise to niches of cultural production which 'reflect the particularity, subtlety, idiosyncrasy, and patina of locality at scales, at time frames, and through modes of organisation appropriate to those places and the enterprises within them' (Dillon et al, 2009).

The Globalisazation Project has given some parts of humanity a economic richness beyond the dream of medieval societies, or of Fourth World Peoples, but at great cost to our planet. If the co-constitutional aspects of an ecological approaches to understanding education across cultures can provide 'slats', then cross-cultural understandings may provide directions for change. This is not to argue for an Enlightenment approach to developing a 'synthesis' (within Hegel's tripartite understanding of history), but to argue for a post-Enlightenment understanding which sees education as 'connectivity' – across generations and across people.

REFERENCES

Atleo, R. (2004). Tsawalk – a Nuu-chah-nulth Worldview. Vancouver: UBC press.

Bayliss, P. (2009). *Mongolian Education in a time of change: cosmologies, history and cultural formations.* Paper submitted to Journal of Mongol Studies (under review)

Benham, M.K.P., & Heck, R.H. (1998). *Culture and Educational Policy in Hawai'i.* New Jersey: Lawrence Erlbaum Associates.

Carnoy, M. (1999). *Globalization and educational reform: what planners need to know.* Paris: UNESCO/IIEP.

Damasio, A. (2000). *The Feeling of What Happens: body, emotion and the making of consciousness.* London: Vintage.

Dillon, P. (2008a). A pedagogy of connection and boundary crossings. Methodological and epistemological transactions in working across and between disciplines. *Innovations in Teaching and Education International,* 45(3), 255–262.

Dillon, P. (2008b). Creativity, wisdom and trusteeship – niches of cultural production. In A. Craft, H. Gardner & G. Claxton (Eds), *Creativity and Wisdom in Education* (pp. 105–118). Thousand Oaks, CA: Corwin Press.

Dillon, P., Bayliss, P., Stolpe, I., & Bayliss, L. (2009). *What constitutes 'context' in sociocultural research. How the Mongolian experience challenges theory. Transtext(e)s Transcultures*, 3, forthcoming.

Edelman, G.M., & Tononi, G. (2000). *Consciousness. How matter becomes imagination*. London: Penguin.

Dyer, C. (2001). Nomads and Education For All: education and development or dometsication? *Comparative Education*, 37(3), 315–327.

Foucault, M. (1971). *Discipline and Punish*. London: Harmondsworth.

Humphrey, C., & Urgunge, O. (1996). *Shamans and Elders*. Oxford: Clarendon Press.

Husserl, E. (1970). *The crisis of European sciences and transcendental phenomenology.* Evanston: Northwestern University press.

Jones, P. (1998). Globalisation and Internationalism: democratic prospects for world education. *Comparative education*, 34(2), 143–155.

Khazanov, A. M. (1994). *Nomads and the Outside World*. Madison: The University of Wisconsin Press.

Kratli, S. (2000). *The bias behind nomadic education*. UNESCO Courier. http://findarticles.com/p/articles/mi_m1310/is_2000_Oct/ai_66495261/pg_2/?tag=artBody;col1. Downloaded. 15th March. 2009.

Kratli, S. (2001a). *Educating Nomadic Herders Out of Poverty? Culture, education and pastoral livelihood in Turkana and Karamoja*. Washington, DC.: World Bank.

Kratli, S. (2001b*). Education provision to nomadis pastoralists: a literature review.* IDS Working Paper 126 . Washington. DC.: World Bank

Latour, B. (1991). *We Have Never Been Modern*. Cambridge, Massachusetts: Harvard University Press.

Levitt, H. (1999). The development of wisdom an analysis of Tibetan Buddhist experience. *Journal of Humanistic Psychology*, 39(2), 86–105.

McGuinness, C. (2005). Behind the acquisition metaphor: conceptions of learning and learning outcomes in TLRP school-based projects. *Curriculum Journal*, 16(1), 31–47.

Meyer, W. (1996). Towards a global culture: Human Rights, group rights and cultural relativism. *International Journal on Group Rights*, 3, 169–195.

Ong, W. (1982). Orality and Literacy. London: Routledge.

Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational Researcher*, 27(1), 4–13.

Steiner-Khamsi, G., & Stolpe. I. (2004). Decentralization and recentrailzation reform in Mongolia: tacing the swing of the pendulum. *Comapriative Education*, 40(1), 29–53.

Stolpe, I. (2008). *Schule versus Nomadismus? Interdependenzen von Bildung und Migration in der modernen Mongolei*. Frankfurt am Main: Peter Lang.

UNESCO, (2009). Education for All. Downloaded at: http://portal.unesco.org/education/en/ev.php-URL_ID=47077&URL_DO=DO_TOPIC&URL_SECTION=201.html . (April, 2009)

WECFA, (1990). *World declaration on Education For All and Framework for action to meet basic learning needs*. New York: WECFA

World Bank, (1995). *Policies and strategies for Education: a World Bank Review.* Washington. DC.: World Bank.

Ze, D. (1995). Walter Ong's paradigm and Chinese literacy. *Canadian Journal of Communication*, 20(4), 1–16.

WHAT PERSONAL FACTORS MOTIVATE THE CARING TEACHER?

Wendy Moran

The importance of caring teachers has been well demonstrated in the literature. Caring teachers assist students academically (Collinson, Killeavey, & Stephenson, 1998; Goldstein, 1999; Newberg, 1995; Perez, 2000; Rogers & Webb, 1991; Sanacore, 2004; White, 2003); caring teachers assist students socially and emotionally (Day, 2004; Noddings, 2001; O'Donoghue, Brooker, & Purdie, 1994; Perez, 2000; Rogers & Webb, 1991); and caring teachers teach students how to care for others (Noddings, 1995).

Defining the notion of care and the caring relation is difficult due to the breadth and depth of its meaning (Agne, 1999; Chaskin & Rauner, 1995; White, 2003). Our understanding of caring comes from seeing it in action, as Rogers and Webb (1991) note: "our knowledge of caring is tacit....we have difficulty defining it [but] we know it when we see it" (p. 177). Noddings (2003) distinguishes natural caring from an ethic of care, claiming that natural caring is a "condition toward which we long and strive, and it is our longing for caring – to be in that special relation – that provides the motivation for us to be moral" (p.5). An ethic of care, argues Hargreaves (1994), Noddings (1984, 1992), and Elbaz (1992) is a moral orientation that is important to understand as a moral basis upon which people make their decisions about caring. Defining caring teachers appears to be less difficult; "a caring teacher", claims Noddings (2001) "is someone who has demonstrated that she can establish, more or less regularly, relations of care in a wide variety of situations." (pp. 100-101). For the purpose of this study, caring will be addressed within the context of the teacher-student relation where certain behaviours are identified as caring.

A teacher's motivation to use caring approaches has received little attention in the literature. A recent study conducted in an Australian secondary school context sought to address this deficit by exploring personal factors that were associated with caring teacher practices. Ten teachers identified as caring were interviewed and spoke of their reasons for choosing to care for students, and the personal factors that they believe contribute to such an approach. This paper reports the findings from this study and defines the personal factors as: the demographic characteristics of teachers, for example, gender, the number of years of teaching experience, and the subjects taught; the beliefs held by the teacher about teaching and the teacher role; and the sources of development as a teacher.

REVIEW OF LITERATURE

Views on how caring teachers demonstrate care have been gathered through many empirical studies, some of which have focused on the teacher perspective (Barber, 2002; Hansen & Mulholland, 2005; Larson & Silverman, 2005; Shacklock, 1998; Vogt, 2002; Weinstein, 1998) and others that have gained the student view (Alder, 2002; Caldwell & Sholtis, 2008; Ferreira & Bosworth, 2000, 2001; Muller, 2001; Schussler & Collins, 2006; Teven, 2001; Teven & Hanson, 2004; Wentzel, 1997). Findings to date from these two perspectives are summarised in Table 1.

Table 1. Teacher and student perspectives of caring practices.

Teacher perspective	Student perspective
Academic care	Academic care
Personal care	Personal care
Commitment to students Personal qualities Relationship building	Commitment to students Personal qualities

With the exception of relationship building, student perspectives encompassed the same notions as teachers of caring practices. Examination of these two perspectives of care suggests that academic and personal care are the types of care administered to students, while relationship building, commitment to students, and personal qualities are the vehicles through which personal and academic care are administered. Hence, for the purpose of this paper 'care' will be defined as having both personal and educational (or academic) domains. To the extent that educational and personal development is the result of caring teachers' endeavours, it is important to learn more about the personal factors that motivate their practices. Key points from the literature in relation to these factors follow.

Individual Characteristics

A study of the literature reveals that gender may impact on a caring teachers' ability to care educationally and personally for his/her students. Some would say that an ethic of care is more often portrayed by women (Gilligan, 1982, 1993; Noddings, 1984, 1986) due to her experiences rather than her genetic disposition. Yet, Thayer-Bacon (1997) asserts the role of caring is interchangeable between males and females and this is supported by Tronto (1987). However, Tronto later qualifies her position by claiming that men 'care about' and women 'care for'; women get involved with the actual care-giving whilst men administer it (Tronto, 1999). Barber (2002) and Vogt (2002) have contributed to the empirical research in this area by claiming that there is little difference between males and females

in the ways that they demonstrate care. These differing views with regard to the connection between gender and the demonstration of care suggest gender is worthy of further investigation.

It may also be helpful to consider years of experience as a teacher when identifying the caring teacher. Limited research suggests that beginning teachers have difficulty reconciling their altruistic beliefs about caring for students with the need to control behaviour in the classroom (Goldstein & Lake, 2003; Gomez, Allen, & Clinton, 2004). While other studies focusing on more experienced teachers suggest that caring for students was integral to their beliefs and that this motivated them in their approaches with students (Collinson, et al., 1998; O'Donoghue, et al., 1994). In both of these latter studies the teachers' beliefs appeared to derive from their experiences of working with their students and from their understandings about how children best learn. Further research is needed to determine if the personal factor of teaching experience affects how teachers care for their students.

Another individual characteristic is that of teaching areas. Some subjects may offer teachers increased opportunities to care for students. It is equally likely that caring teachers may be drawn to teach certain subjects because of the opportunity to care that they afford. The literature review did not reveal any investigation to date into the influences of this factor upon caring teacher practices, despite some empirical research detailing practices of teachers in particular subject areas (Larson & Silverman, 2005; Sanacore, 2004; White, 2003).

Beliefs

The role of beliefs in caring teachers is another personal factor illuminating the motivations of a caring teacher. In a study examining the practices of primary teachers, Nias (1997) identifies six tacit beliefs that are reflected in their work with children. In summary, these beliefs encompass liking children; engaging the whole child; encouraging relationships within the school community; altruism, self-sacrifice and obedience; over-conscientiousness; and commitment and identity. This last belief has been raised by other researchers as a motivation to care (Korthagen, 2004; Sumsion, 2000) while others, like Hargreaves (1994), assert that caring is a central reason why teachers enter primary teaching.

Later research has shed further light on the subject of teacher beliefs. A study conducted by Larson and Silverman (2005) identified caring teachers within a specific subject area and showed that these teachers held three common beliefs about their teaching. The teachers claimed that their first common belief – caring for students being highly important to teaching – was influenced by the role model of their own Physical Education teachers. It appears from this study that teachers hold personal beliefs about teaching and that these are influential on their caring practices towards students.

Sources of Development

In examining the personal factors that motivate caring teachers it is also necessary to explore how teachers' beliefs develop. It has been asserted that caring values and dispositions need to be fostered (Arnstine, 1990; Thayer-Bacon, 1997) and that this most likely occurs within the family context where children are nurtured (Chaskin & Rauner, 1995; Noddings, 1984). Agne (1999) claims that highly effective teachers have either developed deep caring capacities before entering the profession, and, having experienced success continue to perpetuate it, or, that through a committed analysis of the teaching/learning process and the use of careful observations and experience, they have acquired a deep, caring state during their teaching process. The role of family and experiences in their own schooling may also have a personal effect on the motivation of a caring teacher. With regard to empirical research there has been little reported about the effects of these influences on the caring teacher.

In summary, the personal factors that may influence the motivation of a caring teacher have received some attention in research over the last twenty years but this research has not been systematic in its approach. The purpose of this paper is to report the findings of a study that examines the role of personal factors motivating the caring teacher.

METHODOLOGY

Three metropolitan secondary schools were randomly selected as sites for the study. The study was designed to provide information about caring teachers and consisted of two main parts: a survey of teaching staff in all three schools; and interviews with ten peer-nominated caring teachers. Surveys were used to gather data from teachers in the three schools. The advantage of using a survey tool was threefold: firstly, a relatively large number ($N = 178$) of teachers' opinions could be gathered expediently (Cohen, Manion, & Morrison, 2007); secondly, it was hoped that a brief survey would increase response rates due to the limited commitment of teachers' time (97.8% of responses were attained); and thirdly, administration of an inventory and rating scale was more suited to this type of data collection. Interviews were also utilised with a smaller group of teachers to gain greater understanding than a survey could provide, along with the opportunity to probe issues. Interviews enabled descriptive data to be gathered in the words of the participant, assisting the researcher to develop insights on their participants' perceptions (Bogdan & Biklen, 2007).

In the survey, teachers were asked to provide personal information such as name (for cross-checking with part two of the study later), gender, years of teaching experience and subjects taught. Secondly, teachers were also required to complete a Student-Content Teaching Inventory (S-CTI) (Spier, 1974) which measured a teacher's orientation to content and to students. Finally, the same teachers were asked to nominate up to five teachers on their staff who they believed were educationally and personally caring teachers. Once the ten most nominated teachers from across the three schools were selected, interviews were organised with each. The

following section describes in more detail the measures and analysis procedures used to learn more of the personal factors that motivate caring teachers.

The Survey

The S-CTI (Spier, 1974) was included to give each teacher a score for their orientation to students and their orientation to content. The similarity between student/content orientation from Spier's inventory and personal/educational practices of caring teachers enabled a fair comparison, hence establishing with some reliability the attitudes of the teachers.

The inventory requested that respondents select the 'more important' task from 40 sets of paired items. The first set of 20 answers could be tallied to produce a score out of 20 representing student orientation. Student orientation can be described as "reflecting an emphasis on sharing versus [an] emphasis on personally retaining classroom authority" (Spier, 1974, p. 113). The second set of 20 answers produces a content orientation score, also out of 20. Content orientation represents "attitudes and behaviours reflecting emphasis on job activities versus emphasis on role attributes" notes Spier (1974, p. 113). Personal data including gender, teaching experience, and subjects taught were entered into SPSS (version 11). The responses from the S-CTI were also entered and scores were derived for the content and student orientations for each participant; this allowed statistical testing of significant associations between personal factors and the orientations of teachers. Independent *t*-tests were performed on the data to determine whether gender had an effect on S-CTI orientations, while ANOVAs were used for the individual characteristics of teaching experience and subjects taught.

The Interview

The ten most nominated caring teachers participated in a one hour interview. Additionally, they were observed for a full day to validate their caring practices. For the purposes of this paper however, the discussion will focus on findings related to motivation to care which were determined through the interviews held at the end of the observation day. Of the ten teachers, there were three males and seven females ranging in teaching experience from three years to over 30 years. The semi-structured interview questions allowed teachers to talk of their caring practices, about the beliefs that they held concerning teaching and caring, and finally, of the factors that they believed influenced the development of their caring capacities. Interviews were transcribed, then read through and checked for accuracy with notes added to show voice inflections or other important non-verbal communicators. The transcripts were coded using content analysis to determine key categories and themes (Burns, 1997) and were clustered together with relation between clusters recorded. Categories were modified and re-tested throughout the process to ensure consistency and validity (Bogdan & Biklen, 2007). The results,

which will be discussed shortly, indicate that individual characteristics, beliefs and sources of development may influence the motivations of a caring teacher.

RESULTS FROM THE SURVEY

The survey conducted with 178 teachers across the three schools provided data concerning the three individual characteristics of gender, years of teaching experience, and subjects taught. Not all teachers completed all sections of the survey: the S-CTI was completed by only 177 teachers; and no more than 176 teachers gave information regarding the subjects they taught.

Gender

The results presented in Table 2 show the Mean, Standard Deviation (SD) and SD error for the S-CTI according to gender. Table 3 shows the equality of means between student and content orientation and gender. The results indicate that males are less oriented towards content than females in this sample of teachers (p = .002). There was no significant difference between males and females for student orientation.

Table 2. Mean & Standard Deviation of Student & Content Orientation for Females & Males

	Gender	n	Mean	SD	SD error
Student orientation	Female	114	13.39	3.65	.342
	Male	63	12.95	4.04	.510
Content orientation	Female	114	11.42	2.88	.270
	Male	63	9.94	3.30	.416

Table 3. Equality of Means between Student and Content Orientation and Gender

	t	df	p
Student orientation	.742	175	.459
Content orientation	3.096	175	.002

Years of Teaching Experience

Teaching experience varied considerably within each of the three secondary schools. The number of years of experience were categorised into phases of

teaching according to Day, Sammons, Stobart, Kington, & Gu (2007) and were compared with the responses for the S-CTI. The results are listed in Table 4 showing the means and standard deviations. There were no statistically significant results for teaching experience.

Table 4. Mean and SD of Participants for the S-CTI According to Years of Experience

Orientation	N	Years experience	Mean	SD
Student	31	0 – 3	13.22	4.12
	48	4 – 7	12.94	3.52
	38	8 – 15	13.45	3.90
	27	16 – 23	13.11	4.59
	29	24 – 30	13.21	3.93
	4	30+	13.00	2.94
Total	177		13.17	3.89
Content	31	0 – 3	11.09	2.83
	48	4 – 7	10.71	3.74
	38	8 – 15	10.26	3.16
	27	16 – 23	11.07	2.59
	29	24 – 30	9.25	2.62
	4	30+	10.85	2.63
Total	177		10.87	3.11

Subjects Taught

The subjects taught by participants were reduced from the sixteen original categories down to six by grouping together like subjects (see Table 5). Each teacher's subjects were compared with their scores for the S-CTI using ANOVAs resulting in a nil effect of statistical significance. The results are given in Table 5 showing the means and standard deviations for content and student orientation.

197

Table 5. Mean and SD of Participants for the S-CTI According to Subject Taught

Orientation	N	Subject	M	SD
Student	76	Humanities	12.57	3.80
	41	Maths & Science	13.20	4.05
	16	Creative Arts	14	4.41
	24	Technical and Practical Studies	14.17	3.68
	13	PDHPE	12.85	4.00
	6	Other	14.2	3.42
Total	176		13.5	3.89
Content	76	Humanities	11.19	2.94
	41	Maths & Science	10.85	2.84
	16	Creative Arts	11.56	3.74
	24	Technical and Practical Studies	10.17	3.52
	13	PDHPE	10.31	3.04
	6	Other	10.20	2.95
Total	176		10.71	3.17

Preliminary Conclusion from Survey

Results from the survey showed that males in the study were less oriented towards content than their female counterparts indicating that gender may play a role in educationally caring for students. However, the results from the ANOVAs comparing years of teaching experience and the subjects taught with the S-CTI scores showed that these two individual characteristics had little to do with an orientation towards caring for students educationally or personally.

RESULTS FROM THE INTERVIEWS

Interview transcripts were analysed to determine the beliefs that motivate caring practices. Particular thought patterns emerged from the interviews that were held with each of the caring teachers. These thought patterns may be described as mindsets; a set of beliefs and motivations causing the caring teachers to behave in an educationally and personally caring manner. While beliefs underpinning care

have been acknowledged in the literature, the findings of this study suggest that these beliefs operate through 'mindsets' held by teachers, and that these mindsets motivate their care.

Mindsets

The mindsets that emerged appeared to represent a way of thinking about people and the role that a teacher could play in working for good outcomes. Ten mindsets were identified, five of which applied to life generally (personal mindsets), and five which applied to teaching in particular (teacher mindsets). The personal mindsets appear to underpin the caring teachers' views of how others should be treated and have been listed in Table 6 according to how frequently each mindset emerged from the data.

Table 6. Personal mindsets of caring teachers

Personal mindset	Description
Do all you can / try to solve the problem	If there is a problem or need, you should do all you can to solve it or make things better.
Be fair	Give everyone a fair chance to succeed. 'Level the playing field' as much as is possible.
Good outcomes often require hard work and/or time	Expect that long term gain will require effort and hard work.
People can change for the better	Giving help and assistance will be worth it because people can change.
Everyone matters	It doesn't matter whether a person falls under one's specific responsibility – care for everyone.

Personal mindsets, in summary, are motivated by a need to solve problems or issues as they arise and by a need to ensure that the outcomes are as fair as possible. As one teacher explained:

Oh, I am sure there would be people who would just go in and say... 'I've explained it once or twice and now you will have to go away and do the rest.' But I can't do that, like I just think, that's what I'm paid to do, is to get them to understand this and if I can't get them to understand it this way then we'll go back and try it this way, and then I'll find some other way. And if I can't explain it then we'll get someone else to explain it.

An expectation of these teachers is that such outcomes may require significant hard work and time but that overall such effort is worthwhile because people can

change for the better. Referring to teachers who expect little of their students one participant said: "Teachers label kids: 'he's dumb', 'he'll never get it' 'he's an idiot' 'don't waste your time' ... I think my training taught me that that wasn't right". For these caring teachers, 'who' is the beneficiary of time and care is not the important issue because all people are important whether it be a colleague or a student, whether within the school grounds or out of it, whether under their direct duty of care or not; everyone matters.

Caring teachers also held five mindsets that were directly related to teaching. Table 7 lists these five mindsets and gives a brief description of each.

Table 7. Teacher mindsets of caring teachers

Teacher mindset	Description
Make a difference	A teacher should make some sort of positive difference to the lives of his/her students.
Work with the whole student	The whole student is important – a teacher should relate to the emotional and educational aspects of each student.
Have boundaries	A teacher should maintain professional boundaries with students whilst maintaining approachability.
Enjoy teaching and like kids	A teacher should like kids and enjoy teaching as it makes it easier to care for them.
Be concerned for both content delivery and student well-being but student well-being is more important	A teacher should be concerned for the educational and emotional needs of students but if emotional needs are hindering learning then deal with these as a priority.

The caring teacher mindsets appeared to be quite strongly linked to the teachers' identity as a teacher. In fact, the teachers believed that to be part of the teaching profession you should hold to such beliefs. The mindset of 'making a difference' was the most frequently emerging mindset when teachers spoke of examples of their care and it appeared to be firmly linked to the reasons why these teachers chose teaching as a career. This is illustrated in the following comment:

> I think I became a teacher in the end because I thought I had something to offer them and…I thought that I could change part of their life and I see, I hope that in my teaching that I make them better people with what I teach, with how I teach, and I think that's why I care.

Another example of this may be found in comments that several of the teachers raised with regard to 'enjoy teaching and like kids'. One teacher noted:

> If you are someone who just sees it as a job that you do from nine till three, then you are not going to show or demonstrate as much care as someone else who takes it as a vocation as such; something that they do because they really love it and enjoy it, with all its good and bad things.

It would appear that the beliefs that caring teachers hold guide them in their practice and becomes a key motivation in their choice to care for students.

Sources of Development

The interviews also provided an opportunity to discover more about the development of the teachers' personal capacity to care. Teachers were asked to talk about their personal experiences of growing up, learning to be a teacher, and the influences they believed had helped them develop into caring people. Teachers responded by describing the effect upon them of parents, and their own school and university teachers.

Six of the ten teachers mentioned the role of parents who not only taught care through their actions but also instructed them to care for others and to put others first. As one teacher said:

> I think my dad was very much my model. He was someone who always had time and consideration for other people. I think that probably was one area I got it from. I think that the way Mum and Dad brought us up was very much the way that you looked after others and considered others.

Other teachers spoke about the example given them by their own teachers at school. This was especially true of two of the caring teachers who felt that their own parents were not good role models for them. One of these two teachers said that the teachers she had at school were vital in her decision to become a teacher:

> I think part of it was that I had teachers who cared a lot…like the difference that they made for me, and they ended up affecting what I chose for a career so I suppose I am really aware of the difference that a teacher can make to someone's life.

Five of the ten caring teachers mentioned that university staff modelled care in word and deed. In instances provided by two of the caring teachers, difficult personal circumstances made continuing their teaching education course an overwhelming prospect. The support given by lecturers made it possible to continue with studies thus modelling how to act as a teacher. Furthermore, some university teachers discouraged their students from labelling school children and encouraged them to put in 100% effort because it would 'pay off' in the long run.

These experiences and role models played an important part in developing the caring teachers' mindsets and capacity to care. They reflect vicarious learning and

experience (an important aspect of teacher efficacy which is grounded in social cognitive theory (Bandura, 1994)), demonstrating how these factors are vital to the motivation to care for students.

DISCUSSION

The results suggest that some personal factors influence the motivation of teachers to care for their students while others do not. When the S-CTI scores were *t*-tested with gender it became clear that males were less oriented to content than females at a significance level of $p = .002$. If the association between orientations in Spier's (1974) work could be aligned with the educational and personal dimensions of care, the results here concerning the difference between males and females in educational orientation may contribute further to the gender debate surrounding care.

There has been a suggestion by some researchers that women may be more understanding and nurturing – more naturally caring (Bullough, 1991; Noddings, 2003) – which may support the findings from this research. Such findings, however, are not consistent with the work of Barber (2002) who claims that male teachers are just as likely as female teachers to be attached to their students. Vogt (2002) also asserts that there did not appear to be significant differences between males and females with regard to ways in which they demonstrated care. While the role of gender with regard to student and content orientations appears to be quite clear in this research, its transferability to the educational and personal care dimensions may not be conclusive. The personal factors that do not appear to influence the caring teacher are years of teaching experience and subjects taught suggesting that the motivation to care for students is a result of factors more deep-seated than, for example, whether you are a beginning teacher or a teacher of History.

Teacher beliefs about students and the teaching role are vitally important factors in the extent to which a teacher demonstrates care. The ten mindsets that emerged from the interview data confirmed the ways in which the caring teachers viewed students and the teaching role. This has a direct impact on the way that the teachers worked with their students. There is some alignment between the mindsets determined in this secondary teacher study and the tacit beliefs of Nias' (1997) work with primary teachers. Such agreement confirms that beliefs are very important to a teacher's approach in the classroom, no matter the age of the students. This notion is supported by Agne's (1999) claim that understanding what a teacher believes is the key to the classroom, and by Day (2004) who asserts that "moral purposes are at the heart of every teacher's work. They underpin their sense of commitment to their pupils which includes but goes beyond the instrumental policy agendas of governments" (p. 24).

Underpinning the mindsets appears to be a spirit of optimism; a hope that situations will improve if help and assistance is given. Mayeroff (1971) draws attention to hope when he states: "there is hope that the other will grow through my caring" (p. 32). Teachers need to have hope in their efforts or they simply won't try. They

need to believe that through their care, change will result and that the changes will be better than whatever was before. This possibility for change is a fundamental belief of caring teachers and this is what motivates their inner response and their outward actions.

Sources of development such as parents, teachers and university lecturers, do seem to play a role in shaping the motivations and mindsets of caring teachers. Models of caring mentors have influenced the caring teacher's decision to be a caring person and teacher. This is a significant factor emerging from the data: teachers, and those who train teachers, can have an impact on the way that teachers behave towards their students. However, it is important to note that those people who have acted as mentors to teachers should also be sure to not only demonstrate care but talk about the importance of care as a relational tool. A similar finding was revealed in the study conducted by Goldstein and Freedman (2003) who found that pre-service teachers needed both the dialogue about using caring practices with students and the role modeling of caring teachers in the tertiary context.

The results of this study have revealed that caring teachers are not caring because of the subjects they teach or their years of teaching experience. Caring teachers are not caring simply because they are female although that may be helpful. Caring teachers are caring educationally and personally to students because they believe that the role of a teacher implies such behaviour, and because they believe that they can make a positive difference to students even if it takes hard work, commitment and time. These beliefs and mindsets are vital motivators to caring teachers and are developed and shaped by not only the parents of the caring teachers but by the teachers they had at school, and by university lecturers who demonstrated and talked about care.

REFERENCES

Agne, K. J. (1999). Caring: The way of the master teacher. In R. Lipka & T. Brinthaupt (Eds.), The Role of Self in Teacher Development (pp. 165–188). Albany, New York: State University of New York Press.

Alder, N. (2002). Interpretations of the meaning of care: Creating caring relationships in urban middle school classrooms. Urban Education, 37(2), 241–266.

Arnstine, B. (1990). Rational and caring teachers: Reconstructing teacher preparation. Teachers College Record, 92(2), 230–247.

Bandura, A. (1994). Self-Efficacy. In V. Ramachaudran (Ed.), Encyclopedia of Human Behaviour (Vol. 4, pp. 71–81). New York: Academic Press.

Barber, T. (2002). A 'Special Duty of Care': Exploring the narration and experience of teacher caring. British Journal of Sociology of Education, 23(3), 383–395.

Bogdan, R., & Biklen, S. (2007). Qualitative research for education: An introduction to theory and methods (5th ed.). Boston: Pearson Education Inc.

Bullough, R. (1991). Exploring Personal Teaching Metaphors in Preservice Teacher Education. Journal of Teacher Education, 42(1), 43–51.

Burns, R. (1997). Introduction to research methods (3rd ed.). Melbourne: Longman.

Caldwell, P., & Sholtis, S. (2008). Developing an ethic of care in the classroom. Kappa Delta Pi Record, 44(2), 85–89.

Chaskin, R., & Rauner, D. (1995). Youth and Caring: An Introduction. Phi Delta Kappan, 76(9), 667–674.

Cohen, L., Manion, L., & Morrison, K. (2007). Research methods in education (6th ed.). London: Routledge.

Collinson, V., Killeavey, M., & Stephenson, H. (1998). Exemplary teachers: Practising an ethic of care in England, Ireland and the United States. Paper presented at the Annual Meeting of the American Educational Research Association, San Diego, California.

Day, C. (2004). A passion for teaching. Oxon, Oxfordshire: RoutledgeFalmer.

Day, C., Sammons, P., Stobart, G., Kington, A., & Gu, Q. (2007). Teachers matter. Maidenhead, Berkshire: Open University Press – McGraw Hill.

Elbaz, F. (1992). Hope, Attentiveness, and Caring for Difference: The moral voice in teaching. Teaching & Teacher Education, 8(5/6), 421–432.

Ferreira, M., & Bosworth, K. (2000). Context as a critical factor in young adolescents' concepts of caring. Journal of Research in Childhood Education, 15(1), 117–128.

Ferreira, M., & Bosworth, K. (2001). Defining caring teachers: adolescents' perspectives. Journal of Classroom Interaction [H.W. Wilson – EDUC], 36(1), 24.

Gilligan, C. (1982). In a different voice: Psychological theory and women's development. Cambridhe, Massachusetts: Harvard University Press.

Gilligan, C. (1993). Reply to critics. In M. Larrabee (Ed.), An Ethic of Care (pp. 270–214). New York: Routledge.

Goldstein, L. (1999). The Relational Zone: The Role of Caring Relationships in the Co-Construction of Mind. American Educational Research Journal, 36(3), 647–673.

Goldstein, L., & Freedman, D. (2003). Challenges enacting caring teacher education. Journal of Teacher Education, 54(5), 441–454.

Goldstein, L., & Lake, V. (2003). The impact of field experience on preservice teachers' understandings of care. Teacher Education Quarterly, 30(3), 115–132.

Gomez, M., Allen, A., & Clinton, K. (2004). Cultural Models of Care in Teaching: A case study of one pre-service secondary teacher. Teaching & Teacher Education, 20, 473–488.

Hansen, P., & Mulholland, J. (2005). Caring and elementary teaching: The concerns of male beginning teachers. Journal of Teacher Education, 56(2), 119–131.

Hargreaves, A. (1994). Changing Teachers, Changing Times: Teachers' work and culture in the postmodern age (1st ed.). London: Cassell.

Korthagen, F. (2004). In search of the essence of a good teacher: Towards a more holistic approach in teacher education. Teaching and Teacher Education, 20(1), 77–97.

Larson, A., & Silverman, S. (2005). Rationales and practices used by caring physical education teachers. Sport, Education and Society, 10(2), 175–193.

Mayeroff, M. (1971). On caring. New York: Harper and Row Publishers.

Muller, C. (2001). The role of caring in the teacher-student relationship for at-risk students. Sociological Inquiry, 71(2), 241–255.

Newberg, N. A. (1995). Clusters: Organizational Patterns for Caring. Phi Delta Kappan, 76(9), 713–717.

Nias, J. (1997). Would schools approve if teachers cared less? Education 3–13, 25(3), 11–22.

Noddings, N. (1984). Caring: A feminine approach to ethics and moral education. Berkley, California: University of California Press.

Noddings, N. (1986). Fidelity in teaching, teacher education, and research for teaching. Harvard Educational Review, 56(4), 496–510.

Noddings, N. (1992). The challenge to care in schools: An alternative approach to education. New York: Teachers College Press.

Noddings, N. (1995). Teaching Themes of Care. Phi Delta Kappan, 76(9), 675–679.

Noddings, N. (2001). The caring teacher. In V. Richardson (Ed.), Handbook of Research on Teaching (4th ed., pp. 99–105). Washington D.C.: American Educational Research Association.

Noddings, N. (2003). Caring (2nd ed.). Berkley, USA: University of California Press.

O'Donoghue, T., Brooker, R., & Purdie, N. (1994). Teachers' caring role: Is it being overlooked in recent school restructuring? Unicorn, 20(4), 49–58.

Perez, S. (2000). An ethic of caring in teaching culturally diverse students. Education, 121(1), 102–105.

Rogers, D., & Webb, J. (1991). The Ethic of Caring in Teacher Education. Journal of Teacher Education, 42(3), 173–181.

Sanacore, J. (2004). Genuine caring and literacy learning for African American children. The Reading Teacher, 57(8), 744–753.

Schussler, D., & Collins, A. (2006). An empirical exploration of the who, what, and how of school care. Teachers College Record, 108(7), 1460–1495.

Shacklock, G. (1998). Professionalism and intensification in teaching: A case study of 'care' in teachers' work. Asia-Pacific Journal of Teacher Education, 26(3), 177–190.

Spier, M. (1974). Student-Content Teaching Inventory (S-CTI). In J. Pfieffer & J. Jones (Eds.), The 1974 Annual Handbook for Group Facilitators. La Jolla: University Associates Publishers, Inc.

Sumsion, J. (2000). Caring and empowerment: A teacher educator's reflection on an ethical dilemma. Teaching in Higher Education, 5(2), 167–179.

Teven, J. (2001). The Relationship among Teacher Characteristics and Perceived Caring. Communication Education, 50(2), 159–169.

Teven, J., & Hanson, T. L. (2004). The impact of teacher immediacy and perceived caring on teacher competence and trustworthiness. Communication Quarterly, 52(1), 39–53.

Thayer-Bacon, B. (1997). The nurturing of a relational epistemology. Educational Theory, 47(2), 239–260.

Tronto, J. (1987). Beyond gender difference to a theory of care. Signs: Journal of Women and Culture and Society, 12(4), 644–663.

Tronto, J. (1999). Women and caring: What can feminists learn about morality from caring? In M. Pearsall (Ed.), Women and Values (pp. 393–402). Belmont, California: Wadsworth Publishing Company.

Vogt, F. (2002). A Caring Teacher: explorations into primary school teachers' professional identity and ethic of care. Gender and Education, 14(3), 251–264.

Weinstein, C. (1998). "I Want to be Nice, But I Have to be Mean": Exploring Prospective Teachers' Conceptions of Caring and Order. Teaching & Teacher Education, 14(2), 153–163.

Wentzel, K. R. (1997). Student motivation in middle school: The role of perceived pedagogical caring. Journal of Educational Psychology, 89(3), 411–419.

White, B. (2003). Caring and the teaching of English. Research in the Teaching of English, 37(3), 295–328.

THE EFFECT OF TEACHERS' PERSONAL BELIEFS AND EMOTIONAL INTELLIGENCE ON QUALITY AND EFFECTIVENESS OF TEACHING

Lefkios Neophytou[i], Mary Koutselini and Leonidas Kyriakides

INTRODUCTION

Contemporary research in the field of teacher effectiveness has been developed in the frameworks of two distinct models: the process-product" model and the "teacher knowledge and beliefs" model (Campbell et al. 2003; 2004). The main assumption underlying the process–product model is that effective teaching behaviour can be accurately described and prescribed. Consequently, these models focus on observable and measurable aspects of teacher-student interactions such as the pacing of instruction, quantity of teacher student interactions, time on task etc (e.g Borich, 2009; Brophy & Good, 1986; Brown & Saks, 1986; Doyle, 1986). Teacher knowledge and beliefs models on the other hand, are concerned with the subjective nature of teaching. Their focal point is what teachers feel and believe in terms of their practice. The emphasis lies on the process of understanding how teachers' life stories shape their instructional profile, how efficient and capable they consider themselves to be in terms of pedagogical skills and content knowledge, what do they believe about effective teaching and how they feel about students (e.g. Byrne, 1983; Fennema & Loef-Franke, 1992; Muijs & Reynolds, 2001; Sutton & Wheatly, 2003).

Each model has had its share in the development of educational policy (Brown et al., 2003; Campbell et al. 2004: Scheerens, 1992). The process product models have been useful in terms of developing teaching while beliefs' models enhanced the understanding of teachers and their practice. From this perspective each model could be considered as complementary to the other. Surprisingly, academic discourse has been consumed in an ongoing debate focusing on segregation rather than synthesizing. Scholars aligned with the process-product model question the methods and consistency of the beliefs approach and doubt its ability to provide coherent conclusions that can be used to improve teaching (Pajares, 1992). On the other hand, the process-product model has been criticized in terms of its regulatory approach and by the fact that such approaches have often been aligned with conservative educational policies and have been used as the vehicle of transforming teachers into objects (Slee & Weiner, 2001; Weiner, 2002).

The academic jury is still trying to decide which approach is best. Despite the usefulness of scientific debates in the evolution of knowledge, a rigorous polemical approach may be disorienting scholars from what might be the most important thing in education: the advancement of learning. Both models can contribute to fulfil this goal. Understanding teachers and their practice is a prerequisite for the development of optimum teaching practices. Based on these premises, the aim of this article is to enhance understanding in effectiveness and quality of instruction through establishing common grounds between the two competing models of educational effectiveness. Methods of the process-product model can provide an objective account of effectiveness. These, supplemented by the approaches of the beliefs' model can help to further illuminate the underlying and unique factors that have an impact on the quality of teaching and teachers' effectiveness.

The *Dynamic Model of Educational Effectiveness* (DMEE) (Kyriakides & Creemers; 2006; 2008) is the starting point in our attempt to join the two competing approaches on teacher effectiveness research. The DMEA is the evolution of the Creemers (1994) model, which Teddlie & Reynolds (2000) describe as one of the most influential theoretical constructs in the field. The prime concern within the DMEE is the generation and testing of theories which can explain the various relationships that influence effective instruction. Thus, the DMEE can be considered as a process-product model. However, the DMEE goes beyond the establishment of statistical relationships between variables, providing a way out of the a-theoretical dead-end, a condition that has often been indicated as a major shortage of existing studies in the area of Educational Effectiveness (Creemers, 2002). Effectiveness in the DMEE is approached by examining both the effect that the teacher has on improving student performance along with the quality of his/her instruction.

Many studies used multiple methodologies to examine the main assumptions of the DMEE (De Jong, Westerhof, & Kruiter, 2004; Kyriakides, Campbell, & Gagatsis, 2000; Kyriakides, 2005; Kyriakides & Tsangaridou, 2008) and provided empirical support to the main assumptions of the model. However, a common finding in these studies is that more than 25% of the variance remained unexplained. This might be attributed to the fact that some further variables might have to be included in the DMEE (Kyriakides, 2005). Attempting to find some of these additional variables we shift our interest on the teacher. The teacher is probably the most important factor for success or failure in every educational endeavour. As Goodson (1992, p.3–4) notes, "Teachers are not only formal role incumbents; they are active agents making their own story" and is finally the teachers story that reaches and influences cognitive, emotional and social development of the students. Consequently, we adopt a broader perspective that exceeds the classroom level; in the process of achieving optimal understanding of the teachers' behaviour in the classroom we need to examine additional factors related to teachers' practice. Therefore we examine the role that teachers' emotions and beliefs have on effectiveness.

The teacher is neither a fine-tuned instrument nor a well-oiled machine. Our approach is focused on the teacher as a person whose knowledge, experiences, beliefs and emotions are the things that finally determine the quality of his/ her practice.

Emotions, as Hargreaves (1998) comments, are at the heart of teaching. They comprise its most dynamic qualities. Good teachers are emotional, passionate beings who connect with their students and fill their work and their classes with pleasure, creativity, challenge and joy. What teachers believe and feel determines their effectiveness. Therefore, good teaching is not just a matter of knowing one's subject, being efficient, having the correct competences or learning all the right techniques.

Teachers' emotions are an important component of their beliefs about teaching and learning. Beliefs primarily reflect an emotional way of teachers thinking and reacting in terms of effective teaching. (Entwistle et al., 2000). Teachers in their testimonies often equalize good and effective teaching with certain emotional skills and qualities such as patience, caring, compassion, friendliness, warmth and concern (Wilson and Cameron, 1996). Student-centre elements such as classroom climate and positive student-teacher interaction are placed at the centre of teachers' constructions of effective teaching. It is therefore evident that feeling, expressing and regulating emotions is a key component of teachers beliefs and a major determinant in the way teachers teach.

Emotions and rationality are interwoven in the formation of the teachers' personal beliefs and theories. Beliefs and theories are deeply rooted conceptual maps, consisting of arrays of concepts that have been proved to hold true through several tests. The endurance of beliefs in these trials produces an emotional wrapper, which holds all the constituting concepts together. The emotional wrapper makes beliefs even more endurable to change. In order for belief change to occur one should address those components of the beliefs system that are accessible to reason: conceptions. Conceptions are consciously constructed whereas beliefs are emotionally charged (Entwistle et al, 2000; Koutselini, 2009). Therefore addressing conceptions is probably the only way to bypass the resistance placed by the emotional charging of beliefs.

The process of belief change is mediated by a rational, intentional effort. It is an effort to bypass the emotional barrier, or better, to manage it effectively in order to align it with rationality and foster change. In this direction, the epistemological construct of Emotional Intelligence (EI) proves to be very helpful since it is based on the assumption that emotions can be recognised, controlled and regulated in order to achieve various goals. EI is the set of abilities that account for how people's emotional reports vary in their accuracy and explain how more accurate understanding of emotions leads to better problem solving in an individual's emotional life (Goleman, 1998; 1998; Mayer, Salovey& Caruso, 2000a).

This is why we choose emotional intelligence over a general definition of emotions. Emotional intelligence may provide evidence of how through intentional action teachers can recognise and regulate their emotions in order to have a better understanding of the concepts and emotions underlying the personal beliefs that determine their practice and influence the quality and effectiveness of their teaching. The notion of quality is of extreme significance in this endeavour. Despite the fact that numerous studies examined the relation between Educational Effectiveness and Emotional Intelligence (EI), no study so far, investigated what intervenes between these two variables. Studies investigating the relation between EI and effectiveness

209

(e.g.. Edison, 2002; Iordanoglou, 2007; Newsome, Day, & Catano, 2000; Schutte et al., 1998; Drew, 2006; Van der Zee et al., 2002) seem to neglect quality as the intervening factor for effectiveness. Similarly, a linear relation ignoring quality of teaching is underlying research designs that examined effectiveness and beliefs (Nespor, 1987; Feinman-Nemser & Floden, 1986; Richardson et al, 1991). The basic assumption in our study is that we cannot fully comprehend effectiveness unless we examine what a teacher does in a classroom in order to improve students' aptitude and performance. This signifies the notion of *Quality of teaching* which refers to the factors which are under the direct control of the teacher and have an impact on students' performance (Cambell et.al, 2004)

Hence the specific research question of the study is:

1. To examine if the variables of Emotional Intelligence (trait or ability) and Teachers' Beliefs have an effect on the quality and effectiveness of instruction

METHODOLOGY

Participants

Data was collected in Cyprus during April-June 2007. Participants of the study were 82 teachers of the 5th and 6th grade of public elementary schools in Cyprus. Data on effectiveness and quality of instruction derived from the data bank of a previous research conducted by Kyriakides and Creemers (2008). Consequently the same teachers where approached. Two hundred and eight teachers where approached but only 82 of them agreed to participate. Participants were asked to complete three instruments (EQ-I, MSCEIT, and Teachers' Beliefs questionnaire).

Analysis

Our goal in analyzing the data was to see whether teachers' EI and Teachers' Beliefs (independent variables) have an effect on the Quality and Effectiveness of teaching (dependent variables). *Quality of teaching* refers to the factors that according to contemporary educational research are important traits of good practice. Focusing in the classroom level, quality refers to those factors, which are in direct control of the teacher and have an impact on students' performance. Quality in terms of the DMEE consists of eight factors which describe teacher's instructional role: orientation, structuring, questioning, teaching modelling, applications, management of time, teacher role in making classroom a learning environment, and assessment. Each factor can be measured by taking into account the dimensions of frequency, focus, stage, quality and differentiation[ii]. Data for the Quality of teaching derived from two levels, the Teacher level and the Student level. Data for the teacher level were collected from independent observers conducting multiple classroom observations and completing low and high inference questionnaires based on the DMEE. Data for the student level were collected using student questionnaires. In

these questionnaires students were asked to evaluate their teacher based on the dimensions and factors of the DMEE.

Effectiveness of teaching, is the actual and measurable impact that classrooms factors, such as teaching methods, teacher expectations, classroom organisation and use of classroom resources have on students' performance (Cambell, Kyriakides, Muijs and Robinson, 2004). Data about Effectiveness of teaching were collected through specific tests measuring the teachers' contribution in raising student achievement. Tests (in mathematics) were administered at the beginning and the end of the school year. Each teacher's effectiveness was represented by a single number, which reflects the difference in student achievement between the two tests. Analysis of the Kyriakides and Creemers (2008) data allowed for a parsimonious indicator for each one of these variables. Thus, two numerical values were used for every teacher, one reflecting his/her overall effectiveness and another the overall quality of his/her instruction.

The first independent variable was the Emotional Intelligence (EI) of the teachers. EI refers to abilities for identifying, processing and managing emotions in both self and others (e.g. Goleman, 1998; Mayer and Salovey, 1997). Due to the fact that supporting scholars have not yet reached to an agreement about a common definition and measurement of the notion, the two dominant models of emotional intelligence were used in the present study. Hence, Emotional intelligence in our study consists of two different variables reflecting the two schools of thought about EI: *EI as mental ability (EIa)* (Mayer and Salovey, 1997) and *EI as mixed trait ability (EIm)* (Bar-On, 1997).

Emotional Intelligence as a mental ability (EIa) can be roughly described by a single overall performance level. At the same time this can be divided into sub areas of *Experiential* and *Strategic* Emotional Intelligence. Experiential EI score assesses a respondent's ability to perceive, respond and manipulate emotional information without necessarily understanding it. On the other hand Strategic EI assesses the ability to understand and manage emotions without necessarily perceiving feelings well or fully experiencing them. These two areas are divided into four branches: *Emotional Perception and Expression, Emotional Facilitation of Thought, Emotional Understanding, Emotional Management.* The former two are connected with Experiential EI while the latter two to the Strategic EI (Salovey, Mayer & Caruso, 2000c).

In our study, Emotional Intelligence as a mental ability *(EIa)* was assessed using the *Mayer Salovey Caruso Emotional Intelligence Test* –Version 2 (MSCEIT-V2). MSCEIT is an ability-based scale providing a single overall performance score along with scores reflecting the two subareas and the four branches of the model. According to the instrument's technical manual, the MSCEIT has a full-scale reliability of .91, with area reliabilities of .90 (experiential) and .80 (strategic) (Mayer, Salovey & Caruso, 2000c). The Greek version of the instrument was used in the present study and was administered to 300 individuals. The examination of Cronbach's alpha index revealed that reliability was very good concerning the total scale of the instrument (0.79) and excellent concerning the scale of Experiential EI (0.9). Reliability was also sufficient for most of the composite (branch) scales of

the instrument (Emotional Perception and Expression (0.87), Emotional Facilitation of Thought (0.59), Emotional Management (0.59)). However, the reliability for the scale of the Strategic EI scale was quite low (0.47). Even lower was the reliability of the scale of Emotional Understanding (0.13).

The second variable reflecting Emotional intelligence in our study was *EI as mixed trait ability (EIm)*. This variable refers to the Bar-On's model of "Emotional-Social Intelligence". According to Bar-On (2005), EI is a cross-section of interrelated emotional and social competencies, skills and facilitators that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands. Emotional Intelligence according to the Bar-On´s model is accessed using the Bar-On's (1997) Emotional Quotient Inventory (EQ-i). The EQ-i is a self-report measure of emotionally and socially intelligent behaviour. It contains 133 items in the form of short sentences and employs a 5-point response scale with a textual response format ranging from "very seldom or not true of me" (1) to "very often true of me or true of me" (5). The individual's responses render a total EQ score and separate scores on five composite scales (Intrapersonal, Interpersonal, Adaptability, Stress Management and General Mood). In this study we used the Greek Version of EQ-i and tested its' reliability by examining the Cronbach's alpha index in a sample of 270 participants. Reliability was found to be very high concerning the total EQ-i scale (0.94) and very good in all the other composite scales of the instrument: Intrapersonal (0.91), Interpersonal (0.86), Adaptability (0.83), Stress Management (0.75) General Mood (0.77).

The third independent variable of this study was Teachers' Personal Beliefs, which refers to the tacit and often unconsciously held assumptions and attitudes about students, classrooms and the academic material to be taught (Kagan, 1992). Data for Teachers' Beliefs' were collected with a scaled questionnaire consisting of 58 statements derived from a literature review on the topic. The questionnaire consisted of two parts. In the first part of the questionnaire, an array of items examined general aspects of beliefs such as attitudes about contemporary pedagogical approaches, misconceptions about good teaching and teachers' social role. The second part of the questionnaire focused on items dealing with teacher's beliefs about the importance of specific teaching tasks. Thus while the first part referred to beliefs and assumptions in general, the second part was focused on beliefs about specific tasks that teachers undertake in their daily routine such as teaching, assessing, communicating with parents, collaborating with colleagues and carrying out administrative duties.

Items from each part were factor analyzed in order to reach to parsimonious and interpretable factors for further analysis. Several factor solutions were examined and problematic items were eliminated on the basis of statistical criteria (factor loading > .40, loadings to more than one factor with second factor loading >0.3 and difference between the two factors loading > .10, Cronbachs' alpha and Pearson Correlation >0.3). Afterwards items were entered or removed in order to obtain the most interpretable solution. Despite the fact that both parts of the questionnaire resulted into interpretable factor solutions, only factors from the second part were retained into our final model, since multilevel analysis indicated no effect on quality

and effectiveness from the factors of the first part of the questionnaire[iii]. The factor structure that resulted from the factor analysis is presented in table A3 (appendix). Thus, concerning the second part of the questionnaire, varimax orthogonal rotation produced four factors responsible 57% of the variance. Cronbachs' alpha for each factor scale was 0.65, 0.64, 0.65 και 0.55 respectively. The first factor, named as *Immediate Teaching Duties* explained 16% of the variance while the second factor, *Non-teaching duties, was* responsible for 14.5% of the variance. The third factor was named as *Student Assessment Duties* and explained 14% and the forth factor, *Duties of Communication and Collaboration,* explained 11.2% of the variance.

Multilevel analysis was not only performed about the Beliefs' Questionnaire. All the factors that emerged from all the instruments (Beliefs Questionnaire, EQ-i and MSCEIT) were entered into a final model to test the relationship among the variables of our study. Final analysis was executed using the MLWin (Rasbash et al., 2002) multilevel analysis software. Diagram 1 presents the effect that our independent variables have on Quality and Effectiveness of Teaching.

According to Diagram 1, only 4 factors appear to have statistically significant effect on Quality of Teaching. Two of these factors derived from EQ-i (Adaptability and General Mood) and two from the Questionnaire on Teachers' Beliefs (Direct Teaching Duties & Student Assessment). None of the MSCEIT factors appeared to have a statistically significant impact on Quality and Effectiveness of Teaching. Adaptability has the stronger effect on Quality (0.21) hence explaining 4% of its variance. General Mood also appeared to have a statistically significant effect on Quality (0.05), which is however very low in comparison with Adaptability. Observing the factors that emerged for the Beliefs' Questionnaire (Direct Teaching Duties & Student Assessment) we can see that each one of them is responsible for 1% of the variance in Quality of Teaching. Finally we can observe that none of the factors has a direct effect on Effectiveness. However we may see indirect effects, mediated by Quality.
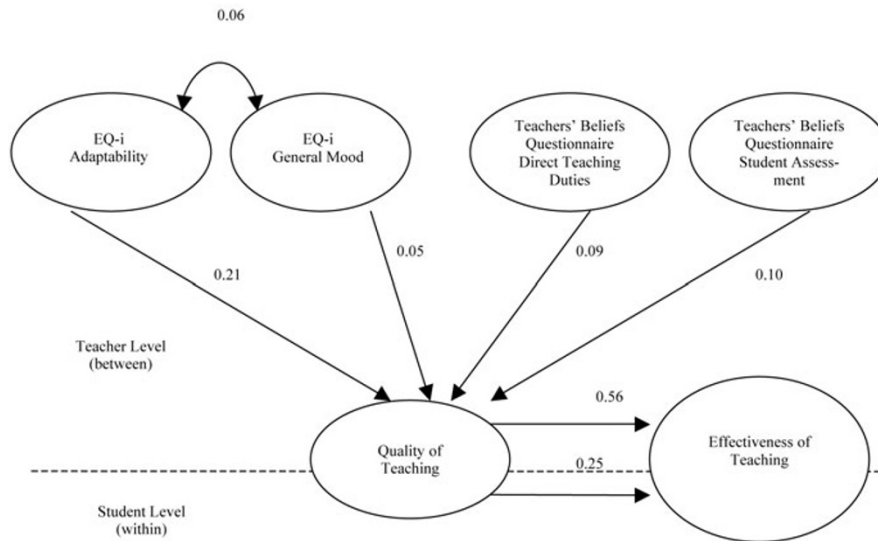
Diagram 1: The final model. Observed correlations between Emotional Intelligence (Trait and Ability), Teachers Personal Beliefs and Theories and their effect on Quality and Effectiveness of Instruction at the Student and Teacher Level.

DISCUSSION

The aim of this study was to examine if the variables of Emotional Intelligence (trait or ability) and Teachers' Beliefs have an effect on the Quality and Effectiveness of instruction.

We begin by discussing the effect that teachers' beliefs have on teaching. Our results brought to surface specific nested presumptions that teachers share. These presumptions were the result of the factor analysis of the first part of the Beliefs' questionnaire and had to do with beliefs and attitudes about contemporary pedagogical approaches, misconceptions about good teaching, teachers' social role and teacher centred instruction. The existence of presumptions, according to Boulgaris (2003) may hinder any attempt for change and block innovations (Pajares, 1992) thus resulting into enforcing conservative approaches, minimize flexibility and cause indecisiveness. The indication of these factors associated with presumptions may be interesting, it was not however associated with the Quality and Effectiveness of Teaching as defined in the DMEE. This finding indicates the existence of a gap that distinguishes theory and practice. Various studies have pointed out this divide (i.e Duffy and Anderson, 1984; Kinzer, 1988; Koutselini & Persianis, 2000; Poulson et al, 2001; Readence, Konopak and Wilson, 1991). As Koutselini (2008) points out, the relationship between beliefs and practice is complex and appears to be dialectical rather than unilateral: in that practice does

not always follow directly from beliefs. Although there may be some congruence between practice and beliefs, the relationship is not so strong. There is a consequent potential for conflict both internally within the corpus of beliefs held, and externally with the reality of teaching, of schools and of the education system within which teachers operate (Duffy and Anderson, 1984; Poulson et al, 2001). So, while teachers may be able to articulate their beliefs outside the classroom, their actual practices are often governed by the nature of teaching and classroom life and the constraints, which these impose (Poulson et al, 2001).

However, a significant effect was observed when it came to beliefs associated with the importance of specific teaching duties. Our results indicate that the factors *Direct Teaching Duties* and *Student Evaluation tasks* have a statistically significant and direct impact on Quality of Teaching (and Indirect on Effectiveness). These two factors are those that are directly related to the teaching duties at the classroom level. This finding indicates that teachers' beliefs have an effect on the Quality and Effectiveness of instruction when they are associated with the actual teaching duties that a teacher can control. A teacher's beliefs about the importance *of Direct-Immediate Teaching Duties* and *Student Evaluation* are something that the teacher can directly apply in his/her practice. This kind of beliefs escapes the notion of tacit and implicit since it is directly connected with a teacher's everyday routine. In this context, the notion of beliefs can become a clear guide for practice. The importance of beliefs in terms of duties performed in everyday teaching is further enforced by the fact that the other two of the factors that emerged from the factor analysis of second part of the questionnaire (*Non teaching duties,* and *Duties of Communication and Collaboration)* were left out of the model. It is therefore evident that teachers´ beliefs about duties that are not directly related to teaching (administrative, collaborative etc) have no statistically significant effect on the Quality and Effectiveness of instruction. Hence, the classroom level appears to be the most significant level in terms of understanding the instructional process. This finding is in line with many other research findings (i.e. Creemers,1994; Teddlie & Reynolds, 2000) stressing the classroom level as a perquisite for understanding influences on all other levels. Summarizing the findings in terms of beliefs and their effect on teaching we can conclude that only beliefs associated with teachers' everyday practice are those having an effect on quality and effectiveness of instruction.

We now continue by examining the relation between Emotional Intelligence and Quality/Effectiveness of Teaching. Results indicated that only one of the two models of EI, namely *EI as mixed/ trait ability (EIm)* has an impact on Quality/ Effectiveness. The fact that only one of the two models of EI has proved to have an effect on Quality does not come as a surprise due to the fact that the two models, despite their common name, still are distinct entities (i.e. Bracket and Mayer, 2003; O' Sullivan M., 2007; Petrides & Furnham, 2001). The effect of EIt on Quality / Effectiveness of teaching is not however attributed to the total construct. It is rather the outcome of two of its dimensions: Adaptability and General Mood. Adaptability appears to have the stronger effect on Quality (0.21) hence explaining 4% of its variance. This finding is again more or less expected, especially when one considers the environments in which teachers work. Classrooms are not just buildings;

they are arenas of social interaction. Thus, being flexible and adaptable is a prerequisite for effective teaching nowadays more than ever, when differentiation of instruction is considered as an essential part of professional ethics. A flexible teacher is more likely to respond better in the demands placed by the contemporary mixed ability classrooms and therefore be more effective. On the other hand, General Mood according to Bar-On (1997) consists of two specific abilities: Happiness and Optimism. These abilities are associated with a general feeling of cheerfulness and enthusiasm. Therefore a teacher mastering the skills associated with General Mood would be more likely to create a colourful and joyful classroom culture that could be beneficial in terms of advancing students' learning. Considering however the magnitude of the influence that General Mood has on Quality and Effectiveness of teaching, one must not barge into ambitious claims overestimating its' importance.

Our results point out that EI and teacher's beliefs have an effect on the Quality and Effectiveness of teaching. However, it is important to examine the nature of the effect. As our analysis reveals, all the factors included in our final model have a direct impact on Quality and an indirect impact on Effectiveness. Any effect on Effectiveness is therefore mediated by Quality. This finding is of extreme importance when we examine the relation between EI, Beliefs and Quality/Effectiveness of teaching. The definition of effectiveness adopted by many studies in education is usually narrow, matching effectiveness with the outcome of students' performance (i.e. Edison, 2002; Duffy and Anderson, 1984; Duffy and Ball,1986; Jaeger, 2002; Nespor; 1987; Parker et al.,2004; Schutte et al., 1998; Swart, 1996). This approach may provide information that can guide educational and social policy on the macro level. However, little information can be derived that can be used at the micro level and provide teachers with information on how to teach better. The key finding in our research is that the impact of EI on effectives is indirect. Hence Quality appears to be a factor that needs to be considered when trying to associate EI, teachers' beliefs and teaching. Quality is the indicator of how well a teacher is able to consider and put into practice all those things that contemporary research has indicated as important for student learning (Cambell, Kyriakides, Muijs and Robinson, 2004). Effectiveness may be reflected by a final mark indicating the difference in students' performance before and after an intervention. This final mark is not however a unilateral factor. Equalizing effectiveness solely with students' performance in tests encapsulates the danger of neglecting many other important factors. We do not suggest that all these factors can actually be found or controlled. However, focusing on the notion of quality we are able to discriminate among controllable and non-controllable effectiveness factors. Thus, the endeavour of improving education can become focused and efficient. Acknowledging quality, in both research and intervention designs, can inform how teachers can improve their practice. In this way effectiveness becomes tangible, manageable and improvable.

CONCLUSION

Joining the process-product and the beliefs models facilitates understanding of both the processes and the agents of teaching. Having a concrete knowledge on both these factors, the product of teaching -which is none else than learning – can certainly improve. The venture of improving teaching should probably begin with a comprehension of the teacher. Insights about teachers' beliefs, attitudes and emotions are of a paramount importance. However, these insights need not to be consumed into an endless theoretical endeavour. If research on teachers' beliefs wants to be aligned with effectiveness it should be focused on what teachers think about the tasks performed in their everyday practice. Similarly, emotions and emotional intelligence abilities come into play when they are connected with the challenges of the classrooms' social environment. Effective teaching calls for flexible, happy and optimistic individuals. Apparently research on effectiveness needs to seek answers and device methods that would help teachers feel happy in their career choices. In addition, research should provide an array of techniques that would make teachers more emotionally competent into handling frustrating conditions.

Prescription and regulation of teachers behaviour is not however an option. The future is unpredictable and therefore impossible to prepare for any precise set of conditions. So, what can teacher educators do? Many years ago, the prominent American philosopher John Dewey, addressing the issue of preparation for the future made a simple but striking argument: "To prepare him for the future life means to give him command of himself" (Dewey, 1929, p. 293). Dewey was of course referring to the child; his suggestions are nevertheless applicable to the teacher as well. Teachers would be more effective if they are able to understand their own practice, explain and challenge their beliefs and become affiliated with their emotions. An alliance between the process-product and beliefs models is apparently much better than a mere competition.

REFERENCES

Bar-On, R. (1997). *The Emotional Quotient Inventory (EQ-i): Technical manual*. Toronto, Canada: Multi-Health Systems, Inc.

Bar-On, R. (2005). The Bar-On model of emotional-social intelligence. In P. Fernández-Berrocal & N. Extremera (Guest Eds.), Emotional Intelligence[Special Issue]. *Psicothema, 17*, 13–25.

Boulgaris (2003, November). *Questionnaire of teachers personal theory*. Paper presented at the AULA conference of the School of Philosophy, University of Athens,: Athens, Greece. (in greek)

Borich, G.D. (2010). *Observation Skills for Effective Teaching.*(6th ed.).Allyn & Bacon.

Bracket, M.A., & Mayer, J.D. (2003). Convergent, discriminant and incremental validity of competing model of measures of emotional intelligence. *Personality and Social Psychology Bulletin, 29*(9), 1–12.

Brophy, J., & Good, T. L. (1986). Teacher Behaviour and Student Achievement. In M. C. Wittrock (Ed.), *Handbook of Research on Teaching* (pp. 328–375). New York: MacMillan.

Brown, B. W., & Saks, D.H. (1986). Measuring the effects of instructional time on students learning: evidence from the beginning teacher evaluation study. *American Journal of Education , 94*. 480–500.

Brown, M, Askew, M, Millett A., & Rhodes V. (2003) The key role of educational research in the development and evaluation of the National Numeracy Strategy. *British Journal of Educational Research, 29*(5), 655–672.

Byrne, C.J. (1983). *Teacher knowledge and teacher effectiveness: A literature review.* Paper presented at the annual meeting of the North-western educational Research Association, Ellenville, NY.

Campbell, R.J., Kyriakides, L., Muijs, R.D., & Robinson, W. (2003). Differential teacher effectiveness: towards a model for research and teacher appraisal. *Oxford Review of Education, 29* (3), 347–362.

Campbell, R.J., Kyriakides, L., Muijs, R.D., & Robinson, W. (2004). Effective teaching and values: someimplications for research and teacher appraisal. *Oxford Review of Education, 30*(4), 451–465.

Creemers, B.P.M. (1994). *The effective classroom*. London: Cassell.

Creemers, B.P.M. (2002). From School Effectiveness and School Improvement to Effective School Improvement: Background, Theoretical Analysis, and Outline of the Empirical Study. *Educational Research and Evaluation, 8*(4), 343–362.

De Jong, R., Westerhof, K. J., & Kruiter, J. H. (2004). Empirical evidence of a comprehensive model of school effectiveness: a multilevel study in Mathematics in the first year of junior general education in the Netherlands. *School effectiveness and school improvement, 15,* 3 – 31.

Dewey, J. (1929). My pedagogical creed. *Journal of the National Education Association, 18*(9), 291–295.

Doyle, W. (1986). Classroom organization and management. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (pp. 392 – 431). New York: Macmillan.

Drew, L. Todd. (2006).The relationship between emotional intelligence and student teacher performance. (Doctoral Dissertation, University of Nebraska-Lincoln). *Dissertation Abstracts International, 67*(10). (UMI No 3240048).

Duffy, G., & Anderson, L. (1984). *Conceptions of Reading: Final Report.* Research series No. 111. East Lansing, Mich.: Michigan State University, Institute for Research on Teaching.

Duffy, G., & Ball, D. (1986). Instructional decision making and reading teacher effectiveness. In: Hoffman, J. (Ed), *Effective Teaching of Reading: Research and Practice.* Newark, Del.: IRA, 163–60.

Edison, B.R. (2002). Emotional intelligence as a mediating variable in Astin's I-E-O model of higher education. (Doctoral Dissertation, The College of William and Mary in Virginia, 2002).*Dissertation Abstracts International, 63*(08), 2808A. (UMI No. 3063256).

Entwistle, N., Skinner, D., Entwistle, D., & Orr, S. (2000). 'Conceptions and Beliefs About "Good Teaching": an integration of contrasting research areas'. *Higher Education Research & Development, 19*(1), 5–26.

Feinman-Nemser, S., & Floden, R.E. (1986). The cultures of teaching, in: M. C. Wittrock (Ed.) *Third Handbook of Research on Teaching,* (pp. 505–526). New York: Macmillan.

Fennema, E., & Loef-Franke, M. (1992).Teachers´knowledge and its imact. In D. A Grous (ed.), *Handbook of Research in Mathematics Teaching and Learning*. New York: McMillan.

Goleman, D. (1995). *Emotional intelligence. Why it can matter more than IQ.* New York: Bantam Books

Goleman, D. (1998). *Working with emotional intelligence*. New York: Bantam.

Goodson, I. F. (1992). Studying teachers' lives: An emergent field of inquiry. In I.F.

Goodson (Ed.), *Studying teachers' lives* (pp. 1–17). London: Routledge.

Hargreaves, A. (1998). The emotional practice of teaching. *Teaching and Teacher Education, 14* (8), 835–854.

Iordanoglou, D.(2007). The teacher as leader. The relationship between Emotional intelligence and leadership effectiveness, commitment and satisfaction. *Journal of Leadership Studies, 1*(3), 57–66.

Jaeger, A. 1. (2002). *Job competencies and the curriculum: An inquiry into emotional intelligence in graduate professional education.* Raleigh, NC: North Carolina State University. (ERIC Document Reproduction Services No. ED 465 341)

Kinzer, C.K. (1988). Instructional frameworks and instructional choices: comparisons between preservice and inservice teachers. *Journal of Reading Behavior, 20*(4), 357–77.

Koutselini, M. (2008). Participatory teacher development at schools. *Action Research, 6*(1), 29–48.

Koutselini, M. (2009). Teachers´ perceptions, beliefs and theories of effective teaching. *Curriculum and Instruction,* Athens: Greek Letters. (in Greek)

Koutselini, M., & Persianis, P. (2000) Theory practice Divide in Teacher Education and the Role of the Traditional Values. *Teaching in Higher Education*, *5*(4), 501–520.

Kyriakides, L. (2005). Extending the Comprehensive Model of Educational Effectiveness by an Empirical Investigation. *School Effectiveness and School Improvement, 16*(2)*,* 103–152.

Kyriakides, L., & Creemers, B.P.M. (2006). Testing the dynamic model of educational effectiveness: Teacher effects on cognitive and affective outcomes. *Paper presented at the 87th Annual Meeting of the American Educational Research Association*. Chicago, USA.

Kyriakides, L. & Creemers, B.P.M. (2008). Using a multidimensional approach to measure the impact of classroom-level factors upon student achievement: a study testing the validity of the dynamic model. *School Effectiveness and School Improvement, 19*(2), 183–205.

Kyriakides, L., & Tsangaridou, N. (2008). Towards the Development of Generic and Differentiated Models of Educational Effectiveness: A Study on School and Teacher Effectiveness in Physical Education. *British Educational Research Journal, 34*(6), 807–838.

Kyriakides, L., Campbell, R.J., & Gagatsis, A. (2000). The significance of the classroom effect in primary schools: An application of Creemers comprehensive model of educational effectiveness. *School Effectiveness and School Improvement, 11*(4), 501–529.

Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P.Salovey & D. Sluyter (Eds.), *Emotional development and emotional intelligence: Educational implications*. New York: Basic Books.

Mayer J., Salovey P., & Caruso D. (2000a). Emotional intelligence as Zeitgeist, as personality, and as a mental ability. In R. Bar-On & Parker (Eds.), *The handbook of emotional intelligence*. San Francisco: Jossey-Bass.

Mayer J., Salovey P., & Caruso D. (2000b). Models of emotional intelligence. In R.J. Sternberg (Ed.), *Handbook of Human Intelligence*. (pp.396–420). New York: Cambridge University Press.

Mayer J., Salovey P., & Caruso D. (2000c). *Mayer , Salovey , Caruso Emotional Intelligence Test (MSCEIT).User's manual*. MHS

Muijs, D., & Reynolds, D. (2001). *Effective Teaching: evidence and practice.* London: Sage.

Nespor, J. (1987). The role of beliefs in the practice of teaching. *Journal of Curriculum Studies, 19*(4), 317–328.

Newsome, S., Day, A. L., & Catano, V. M. (2000). Assessing the predictive validity of emotional intelligence. *Personality and Individual Differences, 29*, 1005–1016.

O' Sullivan M. (2007). Trolling for trout, trawling for tuna. The methodological morass in measuring emotional intelligence. . In G. Matthews, M. Zeidner, & R. Roberts (Eds), *The science of emotional intelligence* (pp. 258–287). New York: Oxford University Press.

Pajares, F. (1992). Teachers beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research, 62*, 307–332.

Parker J.D.A., Summerfeldt L. J, Hogan M. J., Sarah A., & Majeski S.A. (2004). Emotional intelligence and academic success: examining the transition from high school to university. *Personality and Individual Differences, 36,* 163–172

Petrides, K. V., & Furnham, A. (2001). Trait emotional intelligence: Psychometric invstigation with reference to established trait taxonomies. *European Journal of Personality, 15*, 425–448.

Poulson, L., Avramidis, E., Fox, R., Medwell, J., & Wray, D. (2001). The theoretical beliefs of effective teachers of literacy in primary schools: an exploratory study of orientations to reading and writing. *Research papers in Education, 16*(3), 271–292.

Readence,J.E., Konopak, B.C., & Wilson, E.K. (1991). An examination of content teachers' beliefs and instructional choices and their actual planning and practices. *Paper presented at Annual Meeting of National Reading Conference, Palm Springs, Calif., USA, December.*

Richardson, V., Anders, P., Tidwell,D., & Lloyd,C. (1991). The relationship between teachers' beliefs and practices in reading comprehension instruction. *American Educational Research Journal, 28*(3), 559–86.

Rasbash, J., Browne, W., Goldstein, H., Yang, M., Plewis, I., Healy, M., Woodhouse, G., Draper,D., Langford, I., & Lewis, T. (2002). *A users' guide to MLwiN*. London: University of London,Institute of Education.

Scheerens, J. (1992). *Effective Schooling: Research, Theory and Practice*. London: Cassell.

Schutte, N., Malouff, J., Hall, L., Haggerty, D., Cooper, J., Golden, C., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences, 25*, 167–177

Slee, R., & Weiner, G. (2001). Education reform and reconstructions as a challenge to research genres: reconsidering school effectiveness research and inclusive schooling. *School Effectiveness and School Improvement, 12* (1). 83–97.

Sutton, R., & Wheatly, K. (2003). Teachers' Emotions and Teaching: A Review of the Literature and Directions for Future Research. *Educational Psychology Review, 15*(4)*, 327–358.

Swart, A. (1996). *The relationship between well being and academic performance.* Unpublished master thesis, University of Pretoria, South Africa

Teddlie, C., & Reynolds, D. (Eds.). (2000). *The international handbook on school effectiveness research.* New York: Falmer.

Van der Zee, K., Thijs, M., & Schakel, L. (2002). The relationship of emotional intelligence with academic intelligence and the Big Five. *European Journal of Personality, 16*, 103–125.

Weiner, B. (2000). Intrapersonal and interpersonal theories of motivation from an attributional perspective. *Educational Psychoogy Review, 12*(1), 1–14.

Wilson, S., & Cameron, R. (1996). 'Student teacher Perceptions of Effective Teaching: a developmental perspective'. *Journal of Education for Teaching,* 22(2), 181–195.

NOTES

[i] Corresponding author.

[ii] For a detailed explanation see tables A1 & A2 (appendix) and Kyriakides and Creemers (2008)

[iii] See diagram 1

APPENDIX

Table A1: The five cross level dimensions according to the Kyriakides and Creemers (Creemers & Kyriakides, 2006· Kyriakides & Creemers, 2006;2008) Dynamic Model of Educational Effectiveness (DMEE).

Dimension	Description
Frequency	*Frequency* refers to the quantity that an activity associated with an effectiveness factor is present in a system, school or classroom while the *focus* dimension refers to the specificity of the activities and also addresses the purpose for which an activity takes place.
Stage	*Stage* examines the phase of the instructional process at which various activities they take place. It is expected that the factors need to take place over a long period of time to ensure that they have a continuous direct or indirect effect on student learning.
Focus	*Focus* refers to the specificity of the activities and also addresses the purpose for which an activity takes place.
Quality	*Quality* refers to the properties of the specific factor itself, as these are discussed in the literature and at the same time, makes clear and guarantees that teachers are expected to make use of the information gathered from assessment in order to meet their student needs.
Differentiation	*Differentiation* refers to the extent to which activities associated with a factor are implemented in the same way for all the subjects involved with it.

Table A2: The eight factors describing teacher's instructional role-quality of teaching according to the Kyriakides and Creemers (Creemers & Kyriakides, 2006· Kyriakides & Creemers, 2006;2008), Dynamic Model of Educational Effectiveness (DMEE).

Orientation	*Orientation* refers to teacher behavior in providing the objectives for which a specific task or lesson or series of lessons take(s) place and/or challenging students to identify the reason for which an activity takes place in the lesson.
Structuring	*Structuring* refers to the various ways teachers structure their lessons: e.g. by beginning with overviews and/or review of objectives, by outlining the content to be covered and signaling transitions between lesson parts, by calling attention to main ideas; and by reviewing main ideas at the end.
Questioning techniques	*Questioning techniques* examine how effective teachers ask a lot of questions and attempt to involve students in class discussion. This is boosted by considering the optimal question difficulty and its variation depending on the context as well as by mixing product and process questions (more process questions).
Teaching Modeling	*Teaching Modeling* has to do with how teachers help pupils to use strategies and/or develop their own strategies which can help them solve different types of problems and help them organize their own learning (e.g., self-regulation, active learning).
Application	*Application* refers to the extend that teachers provide needed practice and application opportunities for immediate exercise of topics taught during the lesson.
The *classroom as a learning environment*	The *classroom as a learning environment* concentrates on measuring teacher contribution in creating a learning environment in his/her classroom and five elements of classroom as a learning environment are taken into account: teacher-student interaction, student-student interaction, students' treatment by the teacher, competition between students, and classroom disorder.
Management of Time	The factor *Management of Time* focuses on how teachers organize and manage the classroom environment as an efficient learning environment and thereby to maximize engagement rates.
Teacher Evaluation	*Teacher Evaluation* examines how information gathered from assessment can be used in order to enable teachers to identify their students' needs as well as to evaluate their own practice.

Table A3: Rotated component matrix: Factor loadings, eigenvalues and percentages for the four factors that emerged for the second part of the questionnaire on Teachers' Beliefs (Beliefs about the importance of specific tasks associated with the teaching profession)

Questionnaire Items	F1	F2	F3	F4	h²
39. Planning and preparing lessons is a very important aspect of the teaching profession.	,701	-,076	,066	,164	,529
40. Differentiated teaching is a very important aspect of the teaching profession	,679	,076	,231	,100	,531
41.Supportive individualized instruction is a very important aspect of the teaching profession	,653	,347	,198	-,111	,599
42. Attending to discipline problems is a very important aspect of the teaching profession.	,621	,100	-,006	,242	,455
48. Attending staff meetings is a very important aspect of the teaching profession	,020	,844	,037	,144	,735
47.Extra curricular activities is a very important aspect of the teaching profession	-,002	,663	-,014	,263	,510
49. Attending training seminars is a very important aspect of the teaching profession	,255	,658	,144	,008	,519
43. Formative assessment is a very important aspect of the teaching profession	,116	,060	,838	,029	,720
44. Summative assessment is a very important aspect of the teaching profession	,310	-,080	,777	,037	,707
46. Grading student work is a very important aspect of the teaching profession	-,003	,182	,598	,183	,424
51. Working with colleagues is a very important aspect of the teaching profession	,080	,078	,049	,855	,745

52. Communication with parents is a very important aspect of the teaching profession	,358	,143	,084	,616	,535
50. Administrative duties are a very important aspect of the teaching profession	,091	,315	,192	,500	,395
Eigenvalue	2,08	1,89	1,82	1,59	
Percent %	16,03	14,59	14,07	12,25	
Cumulative Percent %	16,03	30,62	44,69	56,94	

ICT IN TEACHING AND LEARNING

LONGITUDINAL STUDY OF THE RELATIONSHIP BETWEEN STUDENTS' PERCEPTIONS OF THEIR PROBLEM SOLVING AND ICT SKILLS AND THEIR ICT EXPERIENCE AS PART OF THEIR TEACHER EDUCATION PROGRAM

Shukri Sanber and Marea Nicholson

INTRODUCTION

Graduate teachers in New South Wales are expected to have functional levels of computing literacy that would help them in the management and the facilitation of student learning. The Professional Standards of the NSW Institute of Teachers not only state that a graduate teacher should "demonstrate current knowledge and proficiency" (NSW Institute of Teachers, 2005, p. 3) in information and communication technology, but they are expected to develop their knowledge and skills as indicators of their professionalism (see Table 1).

Table 1. Element 1 in the Professional Standards of NSW Teachers

Teachers' Professional Levels	Demonstrated Skills
Graduate Teacher	Demonstrate current knowledge and proficiency in the use of the following: - Basic operational skills - Information technology skills - Software evaluation skills - Effective use of the internet - Pedagogical skills for classroom management

Professional Competence	Apply current knowledge and skills in the use of ICT in the classroom to meet syllabus outcomes in the following: - Basic operational skills - Information technology skills - Software evaluation skills - Effective use of the internet - Pedagogical skills for classroom management
Professional Accomplishment	Exhibit and share current skills in the use of ICT in the classroom to meet syllabus outcomes in the following: - Operational skills - Information technology skills - Software evaluation skills - Effective use of the internet - Pedagogical skills for classroom management
Professional Leadership	Initiate or lead the implementation of policies and processes to integrate ICT into the learning environment

(Source: Professional Teaching Standards, NSW Institute of Teachers, 2005, p. 3)

Teacher education programs are expected to provide students with opportunities to develop the skills that will allow them to grow in their workplaces and use effectively the ever-changing technological environment in the classroom. (Watson, Proctor, Finger, & Lang, 2004)

There is widespread recognition of the potential of computers in the classroom. (Department of Education and Science, 2005) Interest in teachers' computer and ICT skills is growing at phenomenal speed world wide. It would be surprising to find any school professional development plan in Australia that does not include one or more ICT-related skills. Teachers are being skilled in the use of the ICT to support and enhance their programming and their design of learning activities, and at the same time to help their students make effective use of digital environments and capabilities. Steketee (2005) in a review of the literature identified four ICT integration approaches:

– ICT skills development approach where a core course in computer education is built into the teacher education program;
– ICT pedagogy approach where the students are shown as part of their pedagogical units how to integrate ICT in the classroom;
– Subject-specific approach where specific ICT programs are included in the curriculum units on offer within the teacher education program; and
– Practice-driven approach where students design ICT resources for their practicum experiences (p. 102).

Computer education courses that are offered to students who specialise in teacher education do not meet the expected needs of the new generations of teachers. These stand alone courses seem to be inconsistent with the level of computing

skills of the entrants to teacher education programs and with the expectations of the digital revolution where ICT "is no longer just another subject taught by schools, it is a means of learning across all subjects – from English, mathematics and science, to the humanities, technical and applied studies, music and visual arts." (Rudd, Steven, & Conway, 2007, p. 1)

The literature suggests that teaching ICT skills in separate courses does not necessarily lead to their transfer to the classroom (Albion, 2000; Watson, Proctor, Finger, & Lang, 2004; Steketee, 2005; Nicholson & Sanber, 2007). Modelling is recognised as a power source for skill transfer. It is a cornerstone concept of apprenticeship. Therefore, it seems logical to deduce that ICT skills should be integrated within the education and curriculum units that are offered in teacher education programs (Nicholson & Sanber, 2007).

The Australian Catholic University (ACU) initiated in 2006 an innovative program where primary student teachers are exposed to and immersed in learning contexts where they have the potential to acquire and develop relevant ICT skills within the contexts of their professional and foundational units in Education. The program was developed in response to identified needs of future teachers and the rationalisation of courses in response to economic pressures that Australian universities have been undergoing since 1998.

ICT INTEGRATION MODEL

ICT Integration Model (ICTIM) that was implemented in 2006 at ACU aims to equip the students with ICT and problem solving skills, and practical pedagogical skills that would enable the graduate teacher to employ the technology in the classroom. The model envisions that technology in general and ICT in particular will be used as:

– Medium of student learning similar to literacy and numeracy;
– Resources to support and facilitate student learning; and
– Processes for interaction and communication among the learners and with the teacher.

The adopted model provides the students with learning environments where they acquire and develop ICT skills through experiential learning as they complete their learning activities in the targeted contextual units (or course). These contextual units are offered as part of the professional, curriculum and foundational units of the education sequence of the teacher education program. Figure 1 shows that the model is expressed through three modules. The targeted outcomes of each module appear in Table 2.

ICT Modules at ACU

Modules	Focus	Learning Activities	Records
Module 1	**Reflecting on Own Learning:** Understanding the scope of ICT for learning processes & developing ICT skills and using them for effective learning	*Reflecting & managing personal learning and growth*	
	↓		
Module 2	**Facilitating Student Learning:** Understanding of ICT potential in the study of student learning & developing advanced ICT skills in text and data processing and management	*Exploring & organising learning resources*	**Digital Portfolios**
	↓		
Module 3	**Fostering Professional Growth** Employing ICT as a medium of professional growth & developing ICT skills that relate to designing personal and shared spaces and evaluating classroom software and resources	*Generating and recording evidence of professional growth*	

Figure 1. ICT Integration Model (ICTIM) at ACU.

The implementation of these modules is governed by the following principles:
– ICT should be used as a medium of learning of the major concepts and knowledge components of the education contextual units.
– Each of the education contextual units should be supported by ICT education specialists. These specialists support student learning as regular tutors as part of the teaching team of each unit.
– Students should be actively engaged in ICT-enriched learning activities within the parameter of each education contextual unit.
– Learning activities should challenge each student to develop their personal and professional ICT-related capacities.
– The focus of unit assessment tasks should be the targeted knowledge, concepts and skills of the contextual units but they should be ICT-enriched.

The first contextual education unit that is chosen for ICT integration is offered during the first year of the teacher education program. Its focus is the contexts for

learning and development. The focus of the second unit is teaching and managing learning environments. The third unit in the integration program focuses on transition to the profession. The three chosen units for the integration provide the student with:

– Pedagogical and psychological foundations.
– Curriculum theory and methods of teaching.
– Opportunities to apply their pedagogical and ICT knowledge and skills through controlled school experience.

Table 2. Targeted Outcomes of ACU Integration Model (ICTIM)

Targeted Learning Outcomes		
Module 1	Module 2	Module 3
- To understand the scope of ICT for learning: processes, application and equipment - To manage personal spaces - To use ICT skills for own learning (e.g. word processing, organisation of concepts, presentations, computer mediated communication) - To use ICT for effective learning: Defining, locating, selecting, organising, and presenting information - To use ICT skills for simple data management and processing	- To understand ICT potentials in the study of student learning - To manage shared spaces - To use advanced ICT skills for learning (e.g. word processing, presentations, computer mediated communication) - To use ICT for effective learning: Locating, assessing, integrating and evaluating information - To use ICT skills for advanced data management and processing	- To employ ICT as a medium for evidence of professional practice - To design personal and shared spaces - To integrate ICT and multimedia resources through designing planning student learning - To evaluate appropriate classroom software and resources - To use databases to store, manipulate and extract teaching and learning materials and activities

The implementation of ICTIM was monitored through a variety of process evaluation data gathering strategies from the first semester of 2006. The difficulties and issues that were identified have been reported elsewhere (see Sanber, Nicholson, & McNamara, 2007; Nicholson & Sanber, 2007).

The chapter reports the changes in students' perceptions of their problem solving skills and ICT capabilities across a four-year span between 2006 and 2009. The perceived growth of these skills should help to determine if building ICT components within regular professional and curriculum courses is a viable and adequate option to faculties of education. Specifically, this chapter addresses the following research questions:

– Is there a significant change in the perceived levels of the general problem-solving skills of the primary education students at the end of their program when compared with the perceived levels of the same skills at the beginning of the program?
– Is there a significant change in the perceived levels of the computing, text and data processing and web-authoring skills of the primary education students at the end of their program when compared with the perceived levels of the same skills at the beginning of the program?

METHODOLOGY

It was decided to use a comprehensive questionnaire that was developed by a researcher in the University of Sydney (Markauskaite, 2005) to assess students' perceptions of the levels of their ICT skills. Upon securing the author's permission, the researchers adapted some of the respondents' background items to align with the course offering at ACU.

The data set that is presented in this chapter was gathered from the 2006 primary education cohort enrolled at Strathfield campus of ACU National. The questionnaire was administered to this cohort during their first lecture of one of the core education units at the beginning of their program in 2006. It was re-administered to the same cohort of students during the last lecture of one of the core education units on offer at the end of the first semester in 2006, 2007, 2008 and 2009. Participants were not coerced to complete the questionnaire. Therefore, the number of completed questionnaires varied from one administration to another (see Table 3).

The questionnaire was initially distributed to all first year education students who were enrolled in the first core unit (EDFD127: Contexts for learning and development) across three campuses of ACU. The total number of participants was 287. The responses of this sample of participants were factor analysed using the Principal Component extraction method with Varimax rotation. The analysis produced four factors (see Appendix 1).

Table 3. Number of participants in the study between 2006 and 2009

Year of Administration	No of completed questionnaires
Base (February, 2006)	67
May 2006	72
May 2007	89
May 2008	95
May 2009	99

The items with a loading of less than 0.40 were not included in the computation of the factor scores. Items that loaded equally on more than one factor were dropped. Four scores were computed for each respondent. These scores represented the identified factors. They were computed with a maximum possible score of 5. The results of factor analysis were consistent with the outcomes of the process of logical analysis to the items of the questionnaire by the researchers. The identified factors through these analyses are:

1. General problem-solving skills: This factor measures respondents' ability to solve general and ICT-related problems. The Cronbach alpha reliability of the scale based on the 2006 ACU sample is 0.95.

2. Basic computing skills: This factor measures respondents' skills in operating a computer and performing tasks common to many software applications. The Cronbach alpha reliability of the scale based on the 2006 ACU sample is 0.93.

3. Commonly used word text and data processing skills: This factor measures respondents' skills in operating common word processing and data processing applications. The Cronbach alpha reliability of the scale based on the 2006 ACU sample is 0.94.

4. Web authoring skills: This factor measures respondents' skills in planning, creating and publishing web pages. The Cronbach alpha reliability of the scale based on the 2006 ACU sample is 0.90.

RESULTS

The analyses in response to the research questions were conducted on the basis of the computed scores for each respondent on the four factors that are discussed above. The analyses are presented by these scores. Each analysis includes:
– Trends in participants' perceptions of their skills on each scale
– Inferential tests of the differences between the 2006 and 2009 responses
– Change effect size using the following formula:

$$d = \frac{\overline{X_{09}} - \overline{X_{06}}}{SD_{06}}$$

, where d = effect size (or change),

$\overline{X}$ = Mean scores, SD = Standard deviation, and 06 & 09 = Study participants in 2006 and 2009.

The effect size is used as a measure of the meaningfulness of the change between the two years. The computed effect sizes of the four factors are presented in Table 4 (Cohen, 1988).

Table 4. Perceived effect size between 2006 and 2009 measures of ICT skills

Perceived Skills	Change Size 2006 to 2009
General problem solving skills	0.73
Basic Computing	0.51
Text and data processing skills	0.56
Web-authoring skills	0.81

General Problem Solving Skills

The mean scores of the respondents on the general problem solving skills increased from 3.18 at the beginning of the primary teacher education program in 2006 to 3.51 at the end of the semester. The participants' perceptions, as measured by this scale, increased steadily between 2006 and 2009 while the spread of their scores remained constant (see Figure 2).
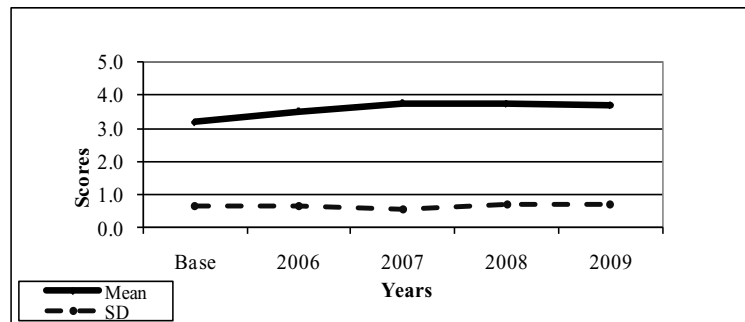

Figure 2. General problem solving skills.

The difference in the mean scores between the perceptions of the participants in 2006 and 2009 is both significant and meaningful (Table 5).

The size of the change on the General Problem Solving scale is 0.70. This effect size is large enough to show a meaningful change between the two administrations of the questionnaire (Cohen, 1988).

The mean scores of the respondents' ratings of their basic computing skills increased from 3.91 at the beginning of entry to the primary teacher education program in 2006 to 4.10 at the end of the semester. The participants' perceptions, as measured by this, scale increased steadily in the following years while the spread of their scores remained more or less constant (see Figure 3).

Table 5. General problem solving skills: t-test for equality of the 2006 and 2009 means*

	Fourth Year	First Year	t	Degree of Freedom	p	Mean Difference	Std. Error Difference
Mean	3.68	3.18	4.460	164	0.000	0.499	0.112
SD	0.73	0.68					

[*] It was decided to use the t-test for uncorrelated data sets, as the responses for the 2006 and 2006=9 were not matched.
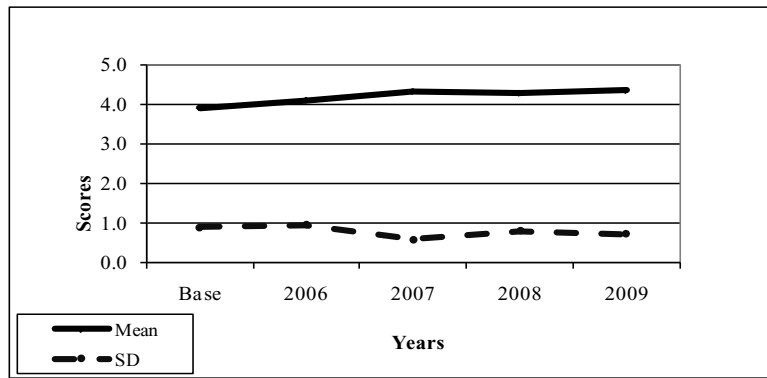

Figure 3. Basic computing skills.

The difference in the mean scores between the ratings of the participants of their basic computing skills in 2006 and 2009 is both meaningful and significant (Table 6).

Table 6. Perceived basic computing skills: t-test for equality of the 2006 and 2009 means

	Fourth Year	First Year	t-test for Equality of Means				
			t	Degree of Freedom	p	Mean Difference	Std. Error Difference
Mean	4.36	3.91	3.623	164	0.000	0.449	0.124
SD	0.70	0.89					

The size of the change on the Basic Computing scale is 0.51. This effect size is moderate but shows a meaningful change between the two administrations of the questionnaire.

235

Text and Data Processing Skills

The mean scores of the respondents' ratings of their text and data processing skills increased from 2.83 at the beginning of the primary teacher education in 2006 to 2.97 at the end of the semester. The participants' perceptions on this scale increased dramatically after their second year in 2007. The increase was slow but steady after 2007 (see Figure 4).
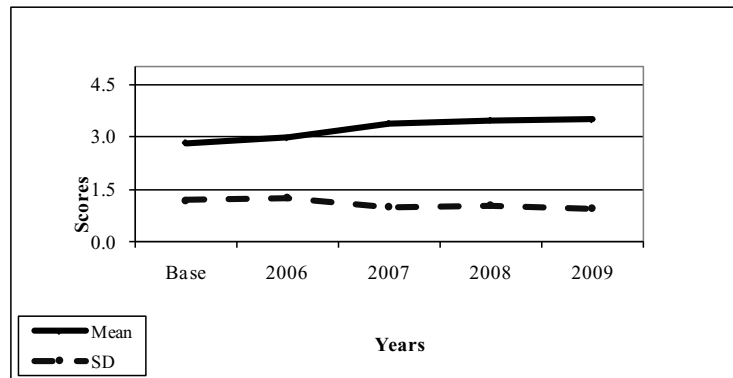

Figure 4. Text and data processing skills.

The difference in the mean scores between the perceptions of the participants of their text and data processing in 2006 and 2009 is both meaningful and significant (Table 7).

Table 7. Perceived text and data processing skills: t-test for equality of the 2006 and 2009 means
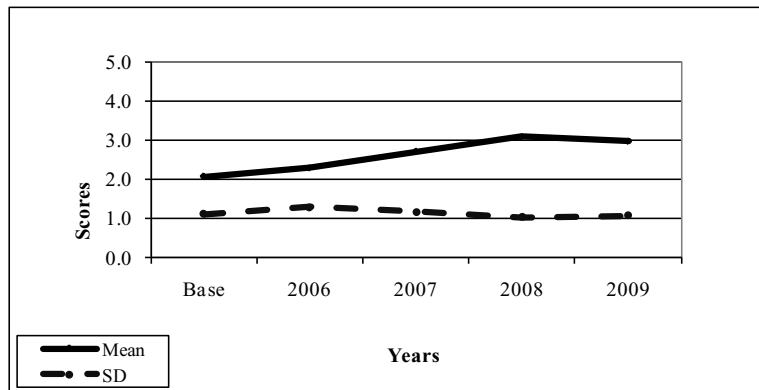
| | Fourth Year | First Year | t-test for Equality of Means | | | | |
			t	Degree of Freedom	p	Mean Difference	Std. Error Difference
Mean	3.50	2.83	3.840	120*	0.000	0.668	0.174
SD	0.95	1.19					

* Equality of variance was not assumed.

The size of the change on the Text and Data Processing scale is 0.56. This effect size is moderate but shows a meaningful change between the two measurements.

Web Authoring Skills

The mean scores of the respondents' ratings of their basic computing skills increased modestly from 2.08 at the beginning of entry to the primary teacher education in 2006 to 2.29 at the end of the semester. The increase was slow but steady in the following years (see Figure 5).

Figure 5. Web authoring skills.

The difference in the mean scores between the perceptions of the participants of their web authoring in 2006 and 2009 is both meaningful and significant (Table 8).

Table 8. Perceived web authoring skills: t-test for equality of the 2006 and 2009 means

| | Fourth Year | First Year | t-test for Equality of Means | | | | |
			t	Degree of Freedom	p	Mean Difference	Std. Error Difference
Mean	2.98	2.08	5.219	162	0.000	0.906	0.174
SD	1.08	1.11					

The size of the change on the Web Authoring scale is 0.81. This size of the change is high and shows a meaningful improvement between the two measurements.

DISCUSSION AND CONCLUSION

This chapter is designed to present the ICT integration model that was envisioned by ACU in response to expected pre-service preparation of teachers, rationalisation of education courses within competing skill demands and limitation of resources,

and the technological and digital revolution that impacts the input and process factors within schools and classrooms. The experience of the teaching staff at ACU and the researchers who monitored implementation of the model, indicate that such integration is possible. The preceding presentation shows that the education units or courses provide suitable contexts for students of teacher education colleges to develop their knowledge and skills in ICT.

More than 55% of the respondents in 2006 indicated that their first experience with computers occurred between the ages of 13 and 18. These are the expected ages of secondary school students in New South Wales. Yet, the results indicate these students perceived that their college experienced improved their problem solving skills as well as their basic and text processing skills.

The effect size results indicate the change has been at least moderate, using Cohen's criteria (1988). The change was particularly high in web authoring skills. This change is observed due to the technical nature of these skills, low entry levels of the participants and the greater variability in their perceived skills. The larger effect size of web authoring is likely to drop with new cohorts of students because of the change in secondary school curriculum and the exposure to computers at younger ages.

The results of this study though informative, they should be considered with caution, due to the relatively small number of respondents who completed the questionnaire in 2006, though they represented more than 60% of the enrolled students in the first year of the primary education program. Given this caution, the results clearly indicate that student teachers can graduate possessing working proficiency in ICT that would enable them to use the technology in the classroom and at the same time be able to further their skills and to adapt with this changing environment.

REFERENCES

Albion, P. (2000). Setting course for the new millennium: Planning for ICT in a New Bachelor Degree Program. In *Society for Information Technology and Teacher Education International Conference*, San Diego: California, February 8–12, 2000.

Angeli, C., & Valanides, N. (2004). The effect of electronic scaffolding for technology integration on perceived task efforts and confidence of primary student teachers. *Journal of Research on Technology in Education*. 37(1), 29–43.

Australian Catholic University. (2008). *ACU National 2008 Handbook*. Sydney: Author. Retrieved from http://my.acu.edu.au/student/applying/handbooks/handbook_2008/

Baki, A. (2000). Preparing student teachers to use computers in Mathematics classroom through long-term pre-service course in Turkey. *Journal of Information Technology for Teacher Education*, 9(3), 343–362.

Baxter, A., Olney, I., Brown, C., & Ferry, B. (2003). Shifting focus on integration: Use of ICT to support community learning in a re-structured one-year teacher education course. In G. Crisp, D. Thiele, I. Scholten, S. Barker, & J. Baron (Eds), *Interact, integrate, impact: Proceedings of the 20th Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education*, Adelaide, 7–10 December 2003.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

Department of Education, Science and Training (DEST). (2005). *A Proposal for the Development of an ICT Competency Framework for Teachers*. Canberra: Author.

Finger, G., Charleston, D., O'Brien, R., & Pugh, L. (2003). Conceptualising the information and communication technologies (ICTs) journeys of future teachers and practising teachers: findings, challenges and reflections. In *Educational research, risks and dilemmas: NZARE/AARE Conference*. Auckland: New Zealand, 29 November – 3 December 2003.

Ho, W. (2004). Use of information and music learning in the search for quality education. *British Journal of Educational Technology*, 35(1), 57–67.

Karagiorgi, Y., & Charalambous, K. (2006). ICT in-service training and school practices: in search for the impact. *Journal of Education for Teaching*. 32(4), 395–411.

Lim, C., Hung, D., Wong, P., & Hu, C. (2004). The pedagogical design of ICT integration in online learning: A case study. *International Journal of Instructional Media*, 31(1), 37–47.

Loughland, T., & Meyenn, B. (2003). Information technology across the teacher education curriculum: More claims than evidence. *Change: Transformations in Education,* 6 (2), 102–108.

Markauskaite, L. (2005). *Exploring differences in trainee teachers. ICT literacy: Does gender matter?* Sydney: Author.

Markauskaite, L. (2006). Gender issues in preservice teachers' training: ICT literacy and on line learning. *Australasian Journal of Educational Technology*, 22(1), 1–20.

McNair, V., & Galanouli, D. (2002). Information and Communications technology in teacher education: Can a reflective portfolio enhance reflective practice? *Journal of Information Technology for Teacher Education*, 11(2), 181–196.

New South Wales Institute of Teachers. (2005). *Professional Teaching Standards*. Sydney: Author.

Nicholson, M., & Sanber, S. (2007, July). Integrating ICT into pre-service teacher education programs: Challenge and response. Paper presented at the International Study Association on Teachers and Teaching (ISATT). Retrieved from http://www.isatt.org/ISATT-papers/ISATT-papers/Nichol son_ IntegratingICTintopre-serviceteachereducationprograms.pdf.

Rudd, K., Smith, S., & Conway, S. (2007). *A Digital Revolution: An Election Policy*. Canberra City ACT: Gartrell.

Sanber, S., Nicholson, M., & McNamara, S. (2007, July). *Teacher educators and the integration of ICT into education studies sequence: Threats and opportunities*. Paper presented at the International Study Association on Teachers and Teaching (ISATT). Retrieved from http://www.isatt.org/ISATT-papers/ ISATT-papers/Sanber2_TeacherEducatorsandtheIntegrationofICTintoEducationStudiesSequence. pdf.

So, H.-J., & Kim, B. (2009). Learning about problem based learning: Student teachers integrating technology, pedagogy and content knowledge. *Australasian Journal of Educational Technology*, 25(1), 101–116. http://www.ascilite.org.au/ajet/ajet25/so.html.

Steketee, C. (2005). Integrating ICT as an integral teaching and learning tool into pre-service teacher training courses. *Issues in Educational Research*, 15(10), 101–112.

Steketee, C. (2006). Modelling ICT integration in teacher education courses using distributed cognition as a framework. *Australasian Journal of Educational Technology*, 22(1), 126–144.

Wang, Y. (2002). When technology meets beliefs: Pre-service teachers' perceptions of the teachers' role in the classroom with computers. *Journal of Research on Technology in Education*, 35(1), 150–162.

Watson, G., Proctor, R., Finger, G., & Lang, W. (2004). Auditing the ICT experiences of teacher education undergraduates. *Australian Educational Computing*, 19(1), 3–10.

APPENDIX 1: FACTOR STRUCTURE OF THE ICT QUESTIONNAIRE

Items that formed the four factors	Loadings
General problem solving skills	
Outline a plan for the solution of information-based learning or research task	.742
Find information and select appropriate tools for the solution of a problem	.774
Manage information that I have collected or generated	.685
Integrate information	.766
Evaluate information and problem solutions	.832
Produce a solution to a problem	.801
Collaborate and communicate with various people in a variety of contexts	.739
Convey a solution in a variety of forms and to different audiences	.762
Judge the final product	.836
Reflect on my problem-solving process	.790
Basic computing skills	
Operate a computer and software	0.850
Manage files, folders and handle other computer storage tasks	0.788
Perform basic tasks common to many software applications	0.831
Perform advanced tasks common to many software applications	0.760
Perform basic word processing tasks	0.758
Create simple images	0.543
Navigate the Internet and access other digital resources	0.689
Search and gather information from the Internet and other digital resources	0.667
Evaluate the relevance and quality of digital resources and information	0.599
Communicate with others via email and other network tools	0.822
Commonly used text and data processing skills	
Perform advanced document formatting tasks	0.642
Manage simple data using spreadsheets	0.741
Manipulate data and solve various problems using spreadsheets	0.803
Use existing databases	0.698
Design and manipulate my own databases	0.759
Design presentations with multimedia elements	0.732

Items that formed the four factors	Loadings
Edit and design graphics	0.602
Web authoring skills	
Create a basic web page	0.765
Create and maintain a multi-page website	0.798
Publish and deliver the results of a research activity using ICT presentation tools and networks	0.735
Collaborate with others using various ICT tools	0.750
Use planning and decision-support tools	0.684

PROFESSIONAL LINKS – PROFESSIONAL SUPPORT: PROMOTING THE DEVELOPMENT OF QUALITY PEDAGOGY AND TEACHERS' SELF-EFFICACY IN THE USE OF ICT WITHIN A SUPPORTIVE PROFESSIONAL LEARNING COMMUNITY

Carolyn Broadbent, Maureen Boyle and Jo Brady

INTRODUCTION

The research reported in this paper has been developed to support the priorities of the National Centre for Science, ICT and Mathematics Education for Rural and Regional Australia (SiMERR) through the work of its local Hub, which is located at Australian Catholic University in Canberra, Australia. The Centre aims to support student achievement and to enhance teacher growth through research and professional learning, by working collaboratively with communities, educational authorities, professional associations and industry groups. In particular, the Centre seeks to address problems faced by teachers who otherwise might be professionally isolated in rural and regional areas.

This SiMERR project aims to promote the development of quality pedagogy and teachers' self-efficacy in the use of interactive whiteboards in their classrooms through the establishment of a professional learning community, which brings together a university, teachers, learning technology officers and selected schools in rural, regional and urban settings. The paper provides an overview of the implementation and evolutionary development of the research project with reference to the structure and rationale for the project and the qualitative and quantitative research methodologies used. These include the collection of data through questionnaires, semi-focused interviews with teachers and students, and lesson observations, including videotaped lessons of teachers' use of interactive whiteboards in their classrooms. Research outcomes to date, the teaching strategies used and the challenges faced during the conduct of the research, are presented.

The paper highlights the benefits that accrue when rural and regional communities are provided with support for the development of learning that addresses identified needs. In a geographically large continent such as Australia this aspect is of particular importance. Finally, it is argued that collaborative partnerships between universities, schools and the wider educational community are to be encouraged as they have the potential to revitalise teachers' professional learning, create avenues

for the construction of new knowledge and development of skills, and, through purposeful and mutually reciprocal engagement, can lead to more equitable and sustainable outcomes for all.

LITERATURE REVIEW

The use of Information and Communication Technologies (ICT) has been a feature in the provision of education and training around the world for at least the last decade. Its use now extends beyond the traditional pattern of students using computers and associated software in a desktop or computer laboratory situation to a much more interactive learning experience (Kennewell & Beauchamp, 2007; Moss, et al., 2007; Wallace, 2007). Amongst the newer aspects of the technology is the use of touch sensitive whiteboard screens or interactive whiteboards (IWBs) with access to the internet, as well as the possibility of development of email-based learning communities which can link and support students and teachers in diverse educational locations.

A review of studies undertaken to investigate the use and impact of ICT on student learning in EU countries highlights the uneven progress and considerable differences within and between countries and schools in the uptake and use of ICT (Balanskat, Blamire, & Kefala, 2006). This review found that in many countries most schools are in the early phase of ICT adoption with very uneven co-ordination of provision and use of the technology. It reports that there was some enhancement in the learning process, 'but no profound improvements in learning and teaching' (Balanskat, et al., p. 2).

The review draws on evidence from 17 recent impact studies and surveys (2002–2006) including large scale impact studies, national ICT programs or initiatives, national inspection reports and specific interventions, research reviews, international and European comparisons, and European case studies. Given the considerable investment worldwide in providing ICT in schools and the recent federal government initiatives in Australia, this European Schoolnet study is of importance as it highlights specific aspects regarding the possible results and value of this investment in the two major areas of learning outcomes and learners and teaching methodologies and teachers.

Using six predominantly quantitative studies, the review sought to establish a causal link between the use of ICT and student outcomes. It also established the concept of 'e-maturity', which is the degree to which organisations make strategic and effective use of ICT to improve educational outcomes. The review summarised its findings related to the impact of ICT on learning outcomes in eight statements:
1. ICT impacts positively on educational performance in primary schools, particularly in English, and less so in science and not in mathematics (Machin, et al., 2006).
2. Use of ICT improves attainment levels of school children in English, in science, and in design and technology between ages 7 and 16, particularly in primary schools (Harrison, et al., 2002).

244

3. In OECD countries there is a positive association between the length of time of ICT use and students' performance in PISA mathematics tests (OECD, 2004).
4. Schools with higher levels of 'e-maturity' demonstrate a more rapid increase in performance scores than those with lower levels (Underwood, et al., 2005).
5. Schools with good ICT resources achieve better results than those that are poorly equipped (Pittard, Bannister, & Dunn, 2003).
6. ICT investment impacts on educational standards most when there is fertile ground in schools for making efficient use of it (Machin, et al., 2006).
7. Broadband access in classrooms results in significant improvements in pupils' performance in national tests taken at age 16 (Underwood, 2005).
8. Introducing interactive whiteboards results in pupils' performance in national tests in English (particularly for low achieving pupils and for writing), mathematics and science, improving more than that of pupils in schools without interactive whiteboards (Higgins, 2005).

With regard to learners and learning, the overwhelming majority of these studies showed that ICT develops motivation and has a positive effect on behaviour, communication and process skills. It allows greater differentiation and tailoring of programs to meet individual needs and facilitates more independent and effective learning. Multimedia and interactive content on interactive whiteboards was also reported to be more engaging and motivating, particularly for primary students who pay more attention during lessons (Higgins, 2005). In a more recent paper, Higgins et al. (2007) argue that in terms of the value gained from IWBs, it is the professional knowledge and skills of the teacher mediating interactions with students that is most beneficial.

Similarly, the European Schoolnet report on the use of ICT also demonstrates a variety of areas of impact on teachers and teaching resulting from increased use of technology (Balanskat, Blamire, & Kefala 2006, pp. 36–49). These include increased enthusiasm and positive attitudes by teachers, increased efficiency and collaboration between teachers in sharing lessons and curriculum plans, and enhancement of teachers' ICT skills. However, the use and impact of ICT is still highly dependent on how it is used, and the report highlights that as yet, teachers do not exploit the creative potential of ICT and engage students more actively in the creation of knowledge. It also states that the use of ICT for communication with and between pupils is still in its infancy (van Kessel, et al., 2005).

An extensive review of the literature regarding the introduction of interactive whiteboards in educational settings is provided by Smith, Higgins, Wall and Miller (2005). Although the review found that teachers and students demonstrate a strong preference for the use of IWBs, it remains unclear whether this enthusiasm is 'translated into effective and purposeful practice' (p. 99). The uniqueness and value of IWB technology, it is argued, 'lies in the possibility for an intersection between technological and pedagogic interactivity' (p. 99) and further research is required 'if practitioners are to use IWB technology in the future as transformational devices' (p. 99).

The potential for developing independent learning and more advanced skills in the use of interactive whiteboards in conjunction with other technology is discussed

in the Lickhill Lodge First School in Worcestershire, England online report (2006). At this primary school, seven-year-olds are involved in recording podcasts, holding interviews with scientists and monitoring weather stations. This approach highlights how ICT together with IWBs can become much more effective than just as a collaborative tool for communication. By focusing on the differing learning styles and engagement in action research, this award winning school (ICT Excellence Awards 2006: Learning and teaching (Primary) demonstrates the way of the future for independent learning at its best. Somekh and Haldane (2006) also highlight the potential of IWBs to create more authentic contexts for situated learning by assisting teachers create links between their classrooms and specific aspects of the outside world. This can result in more immersive and engaging environments for learning (Rudd, 2007).

Rudd (2007) argues that while the literature might suggest that IWBs have the potential to 'support, extend and ultimately transform classroom practice' (p. 5), there are some difficulties in ascertaining the extent to which they are being used to encourage greater interactivity and co-construction of knowledge by teachers and learners. Nevertheless, there is some evidence to suggest that 'factors such as increasing familiarity, good training, time and space to practice and try new approaches, and the growth in teacher confidence' are more likely to have a positive impact on teaching and learning (p. 5).

Miller, Glover and Averis, (2005) provide evidence of three pedagogic phases that teachers pass through as they learn to use IWBs effectively. In the first phase, the *supported didactic phase,* teachers use the technology in the same way as a standard whiteboard and not as an integral tool to concept development. There is little interactivity, discussion or student involvement. The second phase, *interactive,* involves deeper understanding of the technology and results in teachers enhancing their traditional teaching practice by using the IWB to demonstrate concepts, and to challenge students to think by the use of a variety of verbal, visual and aesthetic stimuli. In contrast the teachers who are seen to use IWBs most effectively are in the *enhanced interactive phase*. These teachers structure lessons so that there is considerable opportunity for students to respond to the IWB as individuals, pairs, or groups. The IWB is used as a means of promoting discussion, explaining processes and developing hypotheses, which are then tested to exploit the interactive capacity of the technology.

Overall, the reviews related to the use of IWBs, and their impact in the classroom, do not provide definitive outcomes. What is clear, Rudd (2007) argues, is the need for further research that is: longitudinal; focused on particular pedagogies and pedagogical practices, interventionist, design focused, learner-centred and focused on alternative impact measures; including for example, 'the type of educational futures and dynamic learning environments required for learners to develop appropriate skills and competencies required in the 21st century' (p. 3).

PROJECT CONTEXT

The National Centre for Science, Information and Communication Technology, and Mathematics Education for Rural and Regional Australia (SiMERR) was established in 2006 in Australia to work with rural and regional communities to achieve improved educational outcomes for all students in the areas of Science, ICT and Mathematics. The Centre was developed so that:

– Parents can send their children to rural and regional schools and know they will experience equal opportunities for a quality education;
– Students can attend rural or regional schools and realise their academic potential in Science, ICT and Mathematics; and
– Teachers can work in rural and regional schools and be professionally connected and supported (SiMERR website).

The project reported in this paper supports the priorities of SiMERR through the work of its local Hub, which is located at Australian Catholic University in Canberra. The increasing use of interactive whiteboards, especially in primary classrooms (Smith, et al., 2005; Kennewell, 2006) and a keenness to learn more about the potential of interactive whiteboards to strengthen pedagogical practice in classrooms provided the impetus for the development of this collaborative research project that brought together teachers in schools in rural NSW and the ACT and also members of the Catholic Education Office (Canberra/Goulburn Diocese), which employs Learning Technologies Officers to work with schools to develop professional learning programs that enable teachers to implement quality teaching practices that utilise learning technologies. The Officers work collaboratively with staff in the provision of specific professional learning opportunities related to the delivery of quality learning and teaching; provision of assistance with the development of some resources; and liaison with the participants involved in the project from 2006–2008.

Project Participants – Phase One and Phase Two

– Three academic staff members from Australian Catholic University;
– Three CEO (Canberra/Goulburn) personnel; and
– Fifty teachers from eight schools in rural and regional NSW and Canberra, ACT.

Project Activities Completed – Phase One and Phase Two

– Three full day ICT forums held in Cootamundra and Canberra for a total of 40 teachers;
– Two Twilight Professional Development IWB sessions held in Cootamundra, New South Wales, for 30 rural teachers, facilitated by 5 teachers from the ACT;
– In-depth interviews with 18 teachers involved in the project;
– Interviews with focus groups of approximately 180 students in Kindergarten,

247

and Years 1–6 taught by these teachers;
– A full day professional development intensive IWB training program in Cootamundra, on the pedagogy of higher-order thinking in classroom practice, for 30 teachers from Canberra, Young, Temora and the Cootamundra regions;
– The development of shared digital materials, IWB flip charts and teaching resources; and
– Set up of a Western Region IWB information technology online internet sharing site.

Project Description – Phase One

Phase One of the SiMERR project (2006–07) created links between St Francis Xavier School, Lake Cargelligo NSW, and five primary schools in the Canberra region. Collaboration between the teachers in the local, rural and regional schools aimed to support peer-mentoring and facilitate the development of an effective and sustainable ICT professional learning framework. The use of newly acquired IWBs at the classroom level was a feature of this phase of the project. The participating schools already had a number of interactive whiteboards in their classrooms, and some teachers had demonstrated a degree of competency in, and enthusiasm for, the use of the IWBS to strengthen their classroom practice and enhance student learning.

This phase of the SiMERR Project 2006–07 was titled: *Utilising the information and communication technologies to build a professional learning community to enhance the learning outcomes of teachers and students in rural and regional schools in NSW and the ACT.* Outcomes from this project include:
– Development of a sense of ownership for the project by the participants;
– Establishment of effective professional relationships and sense of community between teachers in the various schools;
– The development of ICT skills through full-day forums, professional engagement and sharing of ideas and resources;
– Emergence of spontaneous mentoring between early career teachers and established practitioners, especially those with expertise in the use of IWBs;
– High levels of teacher motivation to broaden the scope of the project; and
– The development of strong University-school partnerships.

Project Description – Phase Two

Towards the end of Phase One of the project, it became evident that the skills developed by the teachers in the local schools, who had more pre-project experience in the use of IWBs than their rural colleagues, were now at a level where peer-mentoring was possible. As the project developed throughout 2008, three more rural schools joined the newly established 'professional learning community' and the local teachers from Phase One assumed a leadership role in mentoring their rural

colleagues. This new aspect of the project investigated and supported the teaching and learning process following the introduction of IWBs into the classrooms at: Sacred Heart Central School, Cootamundra, NSW; St Anne's Central School Temora, NSW; and, St Mary's School Young, NSW. All three schools had recently installed IWBs, but few professional learning opportunities, especially in relation to pedagogical support, had been provided.

This Phase of the project brought together 30 staff from the three rural schools for two Twilight Sessions held in the rural town of Cootamundra in May and June 2008. These sessions aimed to build knowledge and skills within a supportive professional learning community and importantly were facilitated by teachers who had participated in the original phase of the project. This was regarded as a highly significant element in the overall success of these sessions. Staff from the Australian Catholic University and the CEO (Canberra/Goulburn) also travelled from Canberra to Cootamundra to work alongside teachers during the sessions. The teachers from the two other rural towns outside Cootamundra travelled in their own time after school and at the weekend to participate in the project. An interactive online professional network of support for the region was set up to further enhance the teachers' learning and communication with one another. Following on from the Twilight Sessions, a Professional Development Day was held at Cootamundra to consolidate learning and extend the teachers' understanding of the use of IWBs and, in particular, the way in which the information technologies might be utilised to strengthen intellectual rigour in the classroom.

RESEARCH DESIGN

Methodology

This research project utilises qualitative and quantitative methodologies in the collection of data through questionnaires, semi-focused in-depth interviews with teachers and students, and lesson observations, including videotaped lessons.

The research addresses the following questions:
– What benefits and costs have resulted from the establishment of a professional learning community for teachers and students in the participating schools?
– How has the use of the information and communication technologies assisted in building community and enhancing the learning outcomes for all participants?
– What implications are there from this study for the development of effective models of professional learning experiences for teachers in rural, regional and urban schools?

Analysis and Discussion of Teacher Interviews

Following each phase of the project, which involved a total of 50 teachers, 18 individual teacher interviews (tape recorded) lasting on average some 35–40

minutes were used to explore the impact of the two phases of the project. Teachers were asked to comment on the development of their personal and professional use of IWBs in classroom practice. Questions were also asked regarding the concept of 'on-site' rural professional development and the creation of a supportive learning community.

Using a semi-structured interview schedule to guide the discussions, teachers spoke frankly about their personal experiences in adapting to the use of IWBs. They clearly acknowledged that initially they were very much 'on their own' in many respects in learning how to use the boards as an integral part of day-to-day teaching. The qualitative data gathered from the discussion and interview groups suggests that using an IWB facilitates curriculum integration and the development of information and communication technology skills.

Teachers attending the regional forums were also of the opinion that an IWB enhances competency in literacy and numeracy, encourages deep engagement in learning, and strengthens visual learning processes. These perceptions are in accord with a study by Manchester Metropolitan University published by Becta (2007) that found attainment gains, particularly in mathematics, science and English, resulted from the use of IWBs. These gains were, however, linked to the length of time that students had been taught with an IWB.

Themes arising from the Interviews

The following analysis of data obtained during the 18 teacher interviews provides an insight into the views and thoughts of these teachers on their learning journey.

Pedagogy and teaching style changes. As defined by Miller et al. (2005) teachers move through a series of phases as they adopt a new ICT pedagogical framework that has as its major focus the 'enhancement' of the 'teaching' component of their everyday classroom practice. The digital convergence provided by IWB technology allows teachers to manage the teaching and learning process so that the class can interact much more effectively with the content and context of the lesson. Teachers' comments on this aspect show clearly the changed pedagogy that they believe had occurred in their classrooms:

> The IWB has opened up my pedagogy in the way that the children are much more involved in the learning process. It allows more of the technology side of things to come into the teaching process. It exposes them so much more to a variety of technology. (Yr 7 teacher)

> I had to start by incorporating it into my established teaching style but now I focus much more on the introduction than I used to. The revision part of the lesson is much easier too as I can quickly refer to an earlier lesson on the IWB. (Yr 1/2/ teacher)

> I think I was a very good teacher before. It has made me a 'deeper' teacher

because I've been able to access all technologies e.g., the net, film, video and print within a lesson rather than separate from the lesson. (Kindergarten teacher)

My teaching style has changed because I can use a lesson now where I can plan for more student involvement. Before, when I used a blackboard and a whiteboard there was minimal involvement. Now I can plan so much more involvement. With the IWB my creativity, efficiency and time management have increased also. (Yr 5 teacher)

I was originally trained in whole class teaching. I have moved away from that now and find the IWB very useful to run group activities while others are at the table groups. (Kindergarten teacher)

Renewed enthusiasm for teaching.   Increased satisfaction with their work was mentioned in most of the interviews. While a number stated that their prior ICT skills were almost non-existent and that the learning curve in the first few months was considerable, all teachers were adamant that they would not want to return to using a static whiteboard.

At first I found it overwhelming but now I think it's wonderful. I love the fact that I have this wonderful resource at my fingertips. (Kindergarten teacher)

I use it all day, in every curriculum area. In my professional life as a teacher I enjoy teaching more. The children are more involved, I get better results from the children and they enjoy the learning process more. They see they are learning more effectively. (Yr 5 teacher)

I probably would have retired before this if they (IWBs) hadn't come along! (Yr 1 teacher)

I've been teaching for a considerable amount of time and using an IWB is probably the most revolutionary thing I've done. (Yr 4 teacher)

Enhancing and enriching learning.   Teachers interviewed during the project believed their students were more on task and more motivated. They also believed that the students covered curriculum content at a faster pace with much more capacity to extend and explore a subject in depth. Special emphasis was placed on the ease of scaffolding lessons and return to prior learning at the touch of a screen. They stated that they were able to cater more effectively to a variety of multiple intelligences and that there was generally higher engagement of students with special needs.

A little boy in my class has very poor short-term memory and concentration skills. Before you would say to him 'Pay attention now' and he'd look at you

and pay attention and ten seconds later he was off doing something else. He's not doing this nearly so much now as it's all there, it's colourful, it's interactive and he gets a chance to have a go on the board himself. The IWB has very much helped the slow learners. (Yr 4 teacher)

I have some children who would fall into the gifted category as well, and they can do other things on the IWB while the core group do something else. It certainly allows much more variety in providing extension for these students. (Yr 5 teacher)

Teachers commented that they are now more creative in the ways they use the technology. They tended to use a clear visual representation of concepts and ideas to consolidate learning, and often engaged every child in the class on a systematic basis in student use of the board. Teachers either obtained a wide range of ready made resources to make maths, science and literacy activities interesting or developed these IWB resources themselves as their expertise increased.

Creating a Professional Community of Learners

At the outset the desired outcomes for this project were:
– establishment of effective professional relationships between teachers within and across rural and regional schools;
– development of ICT skills by teachers through professional engagement and sharing of resources;
– strong evidence for the value of the full day forums in building support and a sense of community; and
– emergence of spontaneous mentoring between early career teachers and established practitioners, especially those with expertise in the use of IWBs.
  The interviews with teachers demonstrate that these outcomes were achieved as shown by the following comments:
  Regarding professional relationships between teachers within and across rural and regional schools:

There is definitely a much stronger sense of community within the school and with other schools now. (Yr 7 teacher)

An essential component of success is the sharing and we have continued to do this here. That is why other staff are keen to get boards in their rooms. They know that the benefit is great and I've actually commented when we had our parent session that I'd feel like I'd had my right arm chopped off if I had to change my room. (Yr 3 teacher)

Regarding the development and sharing of resources:

We have a shared drive and are putting things there but as we are all at different levels this will take time to develop. (Yr 1/2/ teacher)

We are sharing more ideas now than we used to do in the staff room. Most of this is informal sharing. When we all get them (IWBs) we might use a time in the staff meeting to share a tip or two but I think that we will probably share more on a one-to-one peer-tutoring basis. This has probably increased since we got the IWBs. (Yr 5 Teacher)

Regarding the value of full day forums in building support and a sense of community:

It (the SiMERR project) was probably the best in-servicing I have ever had in my teaching career because I got so much out of it myself. The training model is so crucial to the success of the course…When we wrote what we thought on the evaluations I said that the manual and the way we were allowed to 'have a go' was fantastic. I've been teaching 14 years and I probably got more out of that series of in-services than anything else I've ever been to. (Yr 7 teacher)

I really feel that going to Cootamundra and doing the in-service after school and at the weekend was just amazing! I could focus on what I was after and the people who were in-servicing us were fantastic. We had different people every time which was great so I got the best of each. Having a month's break between the sessions and having them in our own region was so wonderful! (Yr 5 teacher)

Regarding emergence of mentoring between early career and established teachers:

I have led in-services here and in other schools because their teachers have felt like us at the beginning of last year. I have really enjoyed showing others what I do with the IWB. (Teacher acting as a peer tutor for Phase Two)

Having a person to build up expertise is important. This has been an important element in our success. (Yr 5 Teacher)

In some ways we have all trained ourselves … We cannot ignore this, especially for our young teachers coming out in their first year. They have enough to cope with in the classroom so introduction to IWBs is important in their Uni studies. (Kindergarten teacher)

Students' Interview Responses

Focus groups of approximately 12 students from each of the classes (Kindergarten – Yr 7) taught by the 18 teachers interviewed were also asked to comment on their learning experiences since the introduction of an IWB in their classrooms. Without exception every student stated that they *'would never want to ever be in a classroom without an IWB'.*

A number of themes related to learners and their learning, reflected in the ICT Impact Report (Balanskat, Blamire, & Kefala, 2006), are evident in the comments made in the student focus group interviews.

Students stated that they believed they had improved their learning achievement:

I really want to learn now compared to last year when I was pretty dumb. I'm getting much better marks in my tests now. I was pretty 'brain dead' last year. When I have some work to do now I always try to do it. This is so different from last year. (Yr 7 boy)

I think I've learned a lot more this year. If the teacher is talking about something and she can't really explain it to us, she can go onto the internet and show us what it is and we can see it in a real way and learn it so easily. (Yr 5 girl)

Students with special needs spoke about their experiences:

My learning is much better because I have dyslexia and last year I couldn't see the board that well and now it's so much easier and bigger. (Yr 4 girl)

A number of students commented on their increased motivation, being on task more and the co-operative classroom climate that had developed with an IWB in the room:

Our class co-operates a whole lot more now because everyone wants to have a go on the IWB. They are really interested in what's happening on the board and concentrating and do not bother with people around them. We all concentrate more on learning and it also helps us with technology as well. (Yr 6 group)

It makes you want to work because you get to have fun and you don't want to stop. (Yr 4 boy)

Younger students working with an IWB had definite perceptions regarding how much they enjoyed them. Their comments reveal very mature insights:

I learn differently because we do harder work. I learned the times table off the IWB and I couldn't learn them before that. It was easier than on the chalkboard or the computer. (Yr 3 girl)

You can go back to see stuff on the IWB. You can't do this on a little board. You just see what's there. I now learn much more quickly as I can see everything and I just keep on looking. (Yr 2 boy)

Written Evaluations of the Professional Development Courses

In written evaluations of the Twilight Workshops, teachers stated that they valued the use of small ability-based group instruction by more experienced peers (teachers from Phase One of the project) and the fact that these sessions were hands-on and interactive. As part of self-directed peer learning they identified individual areas for subsequent workshops and commented that the workshops were '*excellent value*' and '*I will now use the IWB as a springboard for higher order thinking*'. In written evaluations of the full day training course based on the use of IWBs to develop the pedagogy of higher-order thinking in the classroom, rural and regional teachers rated its overall value as: Excellent (58.3%); Very good (33.4%); Good (8.3%). The value of the courseware manual and CD of lessons provided to each participant during this course was also highly ranked as: Excellent (66.7%); Very good (29.2%); Good (4.1%).

The teachers' written comments highlighted their growing perception of the value of IWBs in their classrooms. As one teacher commented, she '*could not imagine being without it*' and the use of the interactive whiteboard had given her '*a new lease of life trying out other things and manipulating objects*'. Another teacher felt she now had '*a new focus and that her teaching was much more interactive*'. The online learning community was seen by a significant percentage of respondents to provide ongoing professional support and development of best practice for isolated teachers. The fact that much of the project was facilitated in the rural location was particularly appreciated. Focus group analysis also identified greater teacher self-efficacy and further student learning enhancement. This was true for both rural and regional teachers. Given the wide variation in length of time that the teachers in this study had been working with IWBs, from three weeks to two years, the interviews revealed evidence of all three pedagogic phases: supported didactic, interactive and enhanced interactive (Miller, Glover, & Averis, 2005), among the teachers in this project.

CONCLUSION

This project has led to the development of an effective professional community of practice and an emerging on-line support network that provides access to current resources and professional learning opportunities. The network assisted teachers to use and integrate information and communication technologies in their classrooms, with a particular focus on enhancing pedagogical knowledge in the use of interactive whiteboards.

Increased collaboration between the CEO (Canberra/Goulburn), Australian

Catholic University, schools and teachers worked effectively to build a sustainable professional learning community focused on the development of quality pedagogy and innovatory practices in schools that promotes effective and equitable learning for all students.

The Project Team is confident this initiative has made a very worthwhile contribution to realising the aims of SiMERR through its focus on supporting the professional learning of teachers in rural schools and thereby improving the learning outcomes of their students. The evidence to date suggests that classroom use of software and the internet not only improves the thirst for factual knowledge among students but also leads to more interactivity and co-construction of knowledge between teachers and students as, together, they explore the world in which they live. The Project Team believes this project could be regarded as a 'lighthouse' model for future projects that link together urban, regional and rural school communities to create more authentic, complex and sustainable learning opportunities for all.

REFERENCES

Balanskat, A., Blamire, R., & Kefala, S. (2006). *The ICT Impact Report: A Review of Studies of ICT Impact on Schools in Europe* European Schoolnet. Accessed at: http://insight.eun.org

Becta (2003). *Using ICT to Enhance Home-school Links – An Evaluation of Current Practice in England,* Becta, UK.

Becta (2006). *The Becta Review (2006) Evidence on the Progress of ICT in Education*, Becta, UK.

Becta (2007). *Evaluation of the Primary Schools Whiteboard Expansion Project, Education and Social Research Institute,* Manchester Metropolitan University, UK.

Harrison, C., Comber, C., Fisher, T., Haw, K., Lewin, C., Lunzer, E., McFarlane, A., Mavers, D., Scrimshaw, P., Somekh, B., & Watling, R. (2002). *The Impact of Information and Communication Technologies on Pupil Learning and Attainment*, Becta, UK.

Higgins, S., (2005). Primary school students' perceptions of interactive whiteboards, *Journal of Computer Assisted Learning*, 21.

Higgins, S., Beauchamp, G., & Miller, D. (2007). Reviewing the literature on interactive whiteboards. *Learning, Media and Technology,* 32(3), 213–235.

Higgins, S., Falzon, C., Hall, I., Moseley, D., Smith, F., Smith H., & Wall K. (2005). *Embedding ICT in the Literacy and Numeracy Strategies: Final Report*, Centre for Learning and Teaching, School of Education, Communication and Language Sciences. Newcastle: University of Newcastle upon Tyne, UK.

Kennewell, S. (2006). 'Reflections on the Interactive Whiteboard phenomenon: Synthesis of research from the UK', paper presented at the AARE Conference, Adelaide, November 2006.

Kennewell, S., & Beauchamp, G. (2007). Features of interactive whiteboards. *Learning, Media and Technology*, 32(3), 227–241.

Machin, S. et al. (2006). *New Technologies in Schools: Is There a Pay Off?* Institute for the Study of Labour, Germany.

Miller, D., Glover, D., & Averis, D. (2006). *Developing Pedagogic Skills for the Use of Interactive Whiteboards in Mathematics.*

Moss, G., Jewitt, C., Levaaic, R., Armstrong, V., Cardini, A., & Castle, F. (2007). The Interactive Whiteboards, Pedagogy and Pupil Performance Evaluation: An Evaluation of the Schools Whiteboard Expansion (SWE) Project: London Challenge. Institute of Education, University of London/DfES: London.

OECD (2004). *Are Pupils Ready for a Technology-rich World? What PISA Studies Tell Us,* OECD, France.

Pittard, V., Bannister, P., & Dunn, J. (2003). *The Big pICTure: The Impact of ICT on Attainment, Motivation and Learning,* DfES Publications, UK. Accessed at: http://www.dfes.gov.uk/research/data/uploadfiles/ThebigpICTure.pdf

Ramboll Management. (2006). *ELearning Nordic 2006: Impact of ICT on Education,* Ramboll Management, Denmark.

Rudd, T. (2007). *Interactive whiteboards in the classroom*. Futurelab report. Accessed at: www.futurelab.org.uk/events/listing/whiteboards/report

Schuck, S., & Kearney, M. (2007). *Exploring Pedagogy with Interactive Whiteboards: A Case Study of Six Schools,* Centre for Learning Innovation, NSWDET.

SiMERR National Centre website, Accessed at: www.une.edu.au/simerr/pages/index.php

Smith, H., Higgins, S., Wall, K., & Miller, J. (2005). Interactive Whiteboards: boon or bandwagon? Critical review of the literature', *Journal of Computer Assisted Learning*, 21(2), 91–101.

Somekh, B., & Haldane, M. (2006). How can interactive whiteboards contribute to pedagogic change? Learning from case studies in English primary schools. Paper presented at: Imagining the Future for ICT and Education Conference, 26–30 June 2006, Alesund, Norway. Accessed at: www. ifip35.inf. elte.hu/alesund/?q=node/155

Somekh, B., Lewin C., Mavers, D., Fisher T., Harrison, C. et al. (2002). *ImpaCT2 Pupils' and Teachers' Perceptions of ICT in the Home, School and Community,* Becta, UK.

Underwood, J., et al. (2005). *Impact of Broadband in Schools,* Nottingham Trent University, Becta, June 2005.

Underwood, J., et al. (2006). *ICT Test Bed Evaluation-Evaluation of the ICT Test Bed Project,* Nottingham Trent University, UK. Accessed at: http://www.evaluation.icttestbed.org.uk/about

Van Kessel, N., et al. (2005). *'ICT Education Monitor: Eight years of ICT in schools'*, Netherlands, Ministry of Education, Culture and Science.

Wallace, A. (2007). Presentation at: Do IWBS have a future in the UK classroom? *Promethean / Futurelab debate*, London, 24 May 2007.

DESIGNING A PEDAGOGICAL MODEL FOR VIRTUAL REALITY AND SIMULATION-BASED LEARNING ENVIRONMENTS OF HEALTHCARE

Tuulikki Keskitalo and Heli Ruokamo

INTRODUCTION

This research is designed to address the pedagogical use of virtual reality (*VR*) and simulation-based learning environments of healthcare. Pedagogical issues are significant issues to consider, because simulation itself is not sufficient to ensure effective learning (Kneebone, 2003). According to Rall and Dieckmann (2005) "simulation, in short, means to do something in the 'as if', to resemble 'reality' (always not perfectly, because then it would be reality again), e.g. to train or learn something without the risks or costs of doing it in reality" whereas "simulators are tools used to resemble parts of reality, mostly to allow simulations" (p. 2). Today, VRs have created more opportunities for experiential learning. While VR is defined in various ways, however, in this article VR is used to refer to the combination of techniques that are used to create and maintain real or imaginary environments (Cobb & Fraser, 2005; Riva, 2003).

This research aims to develop a pedagogical model to support facilitating, training and learning (*FTL*) processes (*cf. teaching, studying and learning (TSL)*, Kansanen, Tirri, Meri, Krokfors, Husu, & Jyrhämä, 2000; Uljens, 1997) in VR and simulation-based learning environments. A pedagogical model "can be used to shape curriculums (long-term courses of studies), to design instructional materials, and to guide instruction in the classroom and other settings" (Joyce & Weil, 1980, p. 1). An effective pedagogical model would make teachers aware of the different choices and means available and help in planning, realisation and evaluation of education in VR and simulation-based learning environments, while ensuring that students benefit from the more meaningful learning experience.

Designing a pedagogical model is conducted using the design-based research (*DBR*) method, which is based on continuous cycles of design, enactment, analysis and redesign (Brown, 1992; Design-based Research Collective, 2003). In this article the theoretical backgrounds, the pedagogical model and the research question as well as the preliminary results of the enactment of the pedagogical model and the data collection in Arcada University of Applied Sciences (Helsinki, Finland) in spring 2009 are presented. The final results are presented in Keskitalo, Ruokamo, and Väisänen (2010). Finally, the redesigned model is introduced.

THEORETICAL BACKGROUNDS

Educational Use of VR and Simulation-based Learning Environments

Simulators and simulations for healthcare education have been introduced because they can provide students experiential learning opportunities and safe and efficient environment for practice (Cleave-Hogg & Morgan, 2002). Also, patient safety issues have been a strong motivator, because it is no longer acceptable that healthcare personnel gain their skills on actual patients or animals (Gaba, 2004; Riva, 2003).

A simulation-based course is typically structured as follows: 1) Introduction, 2) Simulator Briefing, 3) Scenarios and 4) Debriefing (Dieckmann, Gaba, & Rall, 2007; *cf. Learning through Simulations Model*, Joyce, Calhoun, & Hopkins, 2002). According to the model of Joyce and associates (2002, p. 136), in phase 1, *Introduction*, the facilitator presents the course topic and the most important concepts as well as explains the concept of simulation to the students. This phase should also include the explanations of how the course is organised as well as what kind of pedagogical models and methods are used. During phase 2, *Simulator Briefing*, participants begin to enter into the simulation. This is the phase in which the facilitator introduces the scenario. As a learning trigger the facilitator can use problems or real-world examples. The second phase includes the introduction of the goals of the simulation, participants' roles, rules, procedures, and any decisions they will be required to make. In other words, students need to know and understand what is expected of them. In phase 3, *Scenarios*, students participate in the simulation. During this phase the students are active, while facilitators stay little bit aside. Simulation training could involve the practising of basic skills or team skills, problem-solving and assessing performance and competency of individual or teams (Gaba, 2004). In phase 4, *Debriefing*, the facilitator encourages the students to analyse the entire process; for example, how the scenario went, what problems were encountered, how was the learning process, and what has been learned (Fanning & Gaba, 2007). In this phase, it is also important to compare the simulation to the real world, because students need to understand how the knowledge and skills they have learned are affected by the use of VR and simulations (Lane, Slavin, & Ziv, 2001).

Pedagogical Model for Virtual Reality and Simulation-based Learning

Generally, this research builds on the socio-constructivist and socio-cultural perspectives on learning (Lave & Wenger, 1991; Vygotsky, 1978). In other words, learning is related to all actions that take into account a person as a whole and the role of cultural tools and artefacts. Principles of the pedagogical model are derived from the idea of teaching, studying and learning (*TSL*) process (Kansanen, et al., 2000; Uljens, 1997) – referred to in this article as facilitating, training and learning (*FTL*) – as well as the characteristics of meaningful learning (e.g. Jonassen, 1995; Nevgi & Tirri, 2003; Ruokamo & Pohjolainen, 2000). In figure 1 the pedagogical model for

VR and simulation-based learning environments for healthcare is presented.
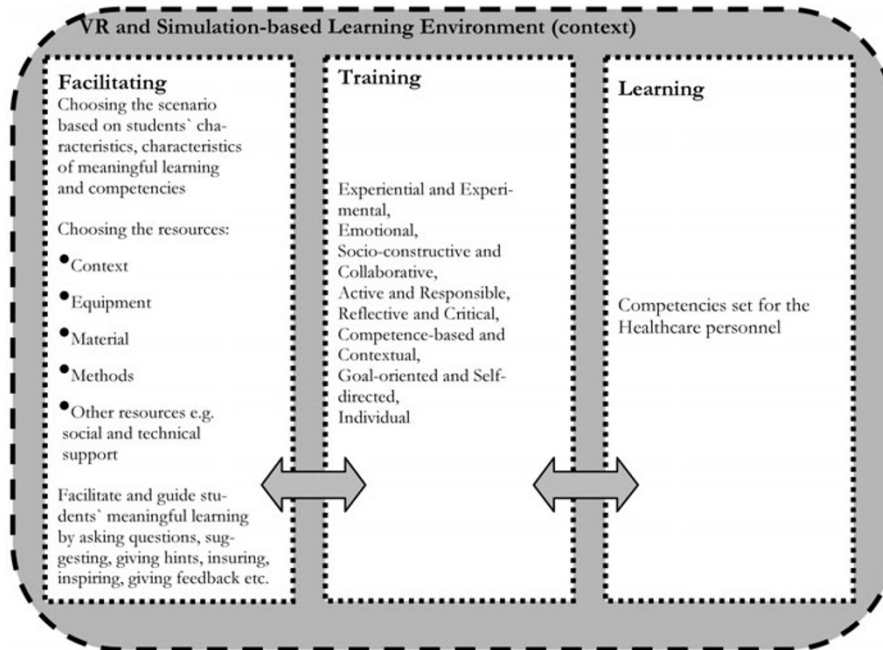

Figure 1. VR and simulation-based learning model.

In this model, facilitation is viewed as the purposive activity of facilitators, aiming at promoting the students' meaningful learning, which includes training as well as outcomes of that process (Engeström, 1982; Hakkarainen, 1997; Jonassen, 1995; Kansanen, et al., 2000). However, it should be noted that learning could be unconscious; in other words, students can learn without a teacher and without specifically deciding to learn something (Kansanen, et al., 2000). According to this model, the facilitators' tasks includes the designing of an FTL process that keeps in mind the specific learning environment and learning objectives as well as the students' characteristics and characteristics of meaningful learning. Additionally facilitator must choose appropriate scenario and resources as well as steer the activities of the students. The simulation course can be structured according to the *Learning through Simulation Model* (Joyce, et al., 2002). At best, FTL can be lead to learning, which is meaningful for the students and where the intended learning goals are met.

A pedagogical model is based on the characteristics of meaningful learning, which previous studies have defined several, including active, self-directed, constructive, individual, collaborative, contextual, intentional, and reflective (Hakkarainen, 2007; Jonassen, 1995; Nevgi & Tirri, 2003; Ruokamo & Pohjolainen, 2000; Tissari, Vahtivuori-Hänninen, Vaattovaara, Ruokamo, & Tella,

261

2005). Initially, HelLa research group (Tissari, et al., 2005) discovered that some of the characteristics of meaningful learning better describe the studying process, which is in keeping with the idea of the TSL process. However, it should be noted that these characteristics are interconnected and somewhat overlapping (Jonassen, 1995). In this model, following 14 characteristics of meaningful learning are selected from theories and results of previous researches, because we think that they best describe the training in VR and simulation-based learning environments:

Experiential and Experimental. Experiences have an important role in VR and simulation-based learning environments (Fanning & Gaba, 2007). In the learning process, students can utilise their own experiences as the starting point for learning (Kolb, 1984), but they also have a great opportunity to gain valuable experiences before encountering the actual healthcare practise (Cleave-Hogg & Morgan, 2002). The facilitators' role is to provide a context, where experiential and experimental training is possible as well as facilitate and guide the students' learning.

Emotional. Emotions are always intertwined with learning (Engeström, 1982). The simulation setting could arouse strong feelings and motivation to learn, but also disbelief, because of its artificial characteristics (Dieckmann, et al., 2007; Holzman, et al., 1995; Moule, et al., 2008). These all affect motivation, but emotions also affect how we act in the simulation setting and what we remember later on (Damasio, 2001; Dieckmann, et al., 2007). In the learning process, facilitators are responsible for orientating students towards learning and creating a safe emotional environment, where meaningful learning is possible (Engeström, 1982; Fanning & Gaba, 2007).

Socio-constructive and Collaborative. Practising in the simulation setting is a social process (Dieckmann, et al., 2007). As applied here, socio-constructivism and collaborative characteristics means that learners exploit each others skills and knowledge, provide support and modelling as well as construct their own knowledge while solving the healthcare cases together with other students (Jonassen, 1995; Lave & Wenger, 1991). Learning is also seen as being tool-dependent (Vygotsky, 1978). Students interact with the environment, simulators and other technical devices. VRs, simulations and simulators have an impact on what we learn and, therefore we should consider what is worthwhile to teach and train in simulation settings (Salakari, 2007).

Active and Responsible. Students are active and responsible for their own learning (Fanning & Gaba, 2007; Jonassen, 1995). Students engage in problem-solving, meaning-making and practising of skills. In other words, they acquire and evaluate information, ask questions, try out different kinds of healthcare equipment and skills as well as model and imitate (Ruokamo, Tuovinen, Tella, Vahtivuori, & Tissari, 2002). Consequently, facilitators should employ *a cognitive apprenticeship* approach to learning, acting as an expert learner modelling good strategies for learning, thinking and practising of skills to novice learners (Collins, Brown, & Newman, 1989).

Reflective and Critical. According to Jonassen (1995) reflectivity means that "learners articulate what they have learned and reflect on the processes and decisions that were entailed by the process" (p. 61). Reflectivity is also related to

learners' metacognitive skills (Morris, 1994). In simulation-based training the role of debriefing is highly emphasised, because it gives the students an opportunity to reflect on their learning as well as receive and give feedback (Issenberg, McGaghie, Petrusa, Gordon, & Scalese, 2005). In higher educations learners should also critically evaluate their own learning and acquired information as well as the learning environment. Especially, in the VR and simulation-based learning environment it is important to compare simulation to the real world (Lane, et al., 2001). Overall, teachers are responsible for the guidance of students' reflection.

Competence-based and Contextual. Facilitators should structure the simulation-based training while keeping in mind the specific learning objectives (Fanning & Gaba, 2007). These learning objectives are usually embedded into a scenario, where a problem or case could function as a trigger for learning (Jonassen, 1995). Learning is also contextual. One clear benefit brought about by these environments is their ability to narrow the relationship between theory and practise, thus enhancing the transfer of learned skills and knowledge into an actual situation (Cleave-Hogg & Morgan, 2002).

Goal-oriented and Self-directed. Students should set and try to achieve their own goals (e.g. Jonassen, 1995; Nevgi & Tirri, 2003) by planning, executing and evaluating their own learning. This will also enhance the motivation and commitment to the learning process according to Knowles (1975). Consequently, teachers play a key role in facilitating and maintaining the students' learning process. In particular teachers need sensitivity to recognise when students are going off-track or when they need support or additional guidance.

Individual. Learners are individually different (De Corte, 1995) and they also perceive the learning environment individually (Nevgi & Tirri, 2003). As Jonassen, Lee, Yang and Laffey (2005) have stated "a key challenge of education is to provide an appropriate educational experience for each student within the context of a class or learning group" (p. 252). Therefore, teachers should provide time to get to know each student and their level of competency properly in order to provide individual guidance and feedback as well as an appropriate learning experience for each student.

The FTL process can be viewed as meaningful and successful when these features and learning goals are realized. Nevertheless, the learning can still be meaningful even though all these features may not be present in the process. Rather, teachers could view those characteristics as goals, which s/he tries to realize and attain. Thus, by exploring these characteristics and by determining how they could be implemented, the facilitator will be able to promote the students' meaningful learning in the VR and simulation-based learning environments.

RESEARCH QUESTION

In this study, the research question is as follows: *From the students' perspective, what were the most important characteristics of meaningful learning that were realized during the simulation-based learning?*

METHODS

Designing a pedagogical model was conducted using the DBR method. DBR is based on continuous and iterative cycles of design, enactment, analysis and redesign. (Brown, 1992; Design-based Research Collective, 2003) In our DBR, the pedagogical model has been designed according to the theories and results of previous researches (Keskitalo, 2008; Keskitalo, in progress). The next phase included the enactment of the pedagogical model at the Arcada Patient Safety and Learning Center in Arcada University of Applied Sciences as well as the data collection and analysis.

DATA COLLECTION AND ANALYSIS

Altogether, 14 (6 males, 8 females) second-year paramedic students and four (4 males) facilitators participated in the seven-weeks course titled *The Treatment of Critically Ill Patient* during April and May, 2009. Before starting the teaching experiment, the pedagogical model was introduced to all participants and they also signed the consent form. Students had five lessons at the Arcada Patient Safety and Learning Center as well as lectures and periods of self-study. During the training sessions, the students worked in teams on scenarios related to the topic areas. The structure of the course followed the *Learning through Simulations Model* (Joyce, et al. 2002). Data was collected using multiple methods. In this research the students' interviews and learning diaries have been analysed. Students wrote their learning diaries at the end of the every session in the simulation-centre. Structured interviews were carried out and recorded at the end of the course in May 2009 and these ranged in length from 25 to 90 minutes. The data was transcribed by the research assistant.

Analysis was performed using the content analysis method (Brenner, Brown & Canter, 1985). Analysis began by reading the students' interviews and diaries in order to obtain an overall picture of the phenomenon. In the second phase, tentative categories were formulated reflecting the purpose of the research. The characteristics of meaningful learning comprise the main categories of this study. In a third phase, a closer analysis was made from the qualitative material; the categories were specified and then compared to the theory.

PRELIMINARY RESULTS

The preliminary results indicate that the use of simulations supported the *experiential, experimental, socio-constructive, collaborative, active, responsible, reflective, competence-based, contextual* and *self-directed* characteristics of meaningful learning most clearly. The *emotional, critical*, *goal-oriented* and *individual* characteristics were not fully realized. Generally, these characteristics were emphasised by some of the students, but not all.

In this research, students saw that they could use their own experiences, previous knowledge and exercises as a starting point for learning (Kolb, 1984). Additionally students felt that they had an opportunity to try out different kind of roles, equipment and situations. Interviews also revealed that students learn from their own experience as well as viewing the practice of others. As these two students have described:

I do by myself in the simulation room, that way I learn it better. (*Student 8, Interview*)

I have learned by watching how the others have done… (*Student 3, Diary*)

In this study, the experienced students emphasised more the experiential characteristics of learning, while those students who had not so much former experience valued the experimental characteristics. As one of the experienced student stated:

I can present my own views and tell what kind of jobs I have had and we can go through those and on the other hand, I express those, because those (experiences) could be useful also for my fellow students. (*Student 6*, *Interview*)

During the simulation-based training, students worked in teams, where they exploited each others skills and knowledge and also had to negotiate and decide on, e.g., the treatment of the patient and the work diagnoses. Therefore, training was highly supportive for the socio-constructive and collaborative characteristics. The students' role as active learner was also crucial; as one of the student stated:

…we have to be active, that we can have most of it. (*Student 13*, *Interview*)

In debriefing (Dieckmann, et al., 2007; cf. Joyce, et al., 2002), students went through the whole learning process: the content-specific topics, successes and failures as well as the process of teamwork. Thus simulation-based facilitating and training was supportive for reflective characteristics of meaningful learning. In this course, facilitators sometimes used the video-recordings to support students' reflection and discussion. Students felt that it was useful and aided their learning; however, they also stated that it took away too much time from actual training. Interviews also indicated that simulations provided an excellent means to promote the development of the students' metacognitive skills (Morris, 1994), since it could very harshly expose the level of one's competence (cf. Cleave-Hogg & Morgan, 2002). Therefore, students usually studied the learning material before and after the training in the simulation-based learning environment in order to obtain the learning goals set for the course and to master the situation.

Those deficiencies I replace just self-studying in fact…just reading. (*Student 1, Interview*)

I was ill-prepared for the rehearsal of the day and it influenced simulation exercise negatively. Because I haven't read. (*Student 2, Diary*)

This study was strongly encouraged by the teachers and it also showed that students felt that they were responsible for their own learning. The competence-based and contextual characteristics were emphasised, since the scenarios and the learning goals were based on the competencies and the situations students need to cope with real life. The ability of simulation-based learning environment to aid the transfer of learned skills into an actual situation was clearly emphasised, as one student stated:

…that you can undergo, undergo different kind of cases and then, at the work, when you confront almost a similar case, you can think that, aah, this was what we concentrated on school… (*Student 4*, *Interview*)

When it comes to the emotional aspect of learning, some students felt that training in a simulation-based learning environment raised positively as well as negatively toned feelings, including "acceleration" (*Student 1, Interview*), "anger" (*Student 2*, *Interview*), "frustration" (*Student 9*, *Interview*), "nervousness" (*Student 7, Interview*), "feelings of safety" (*Student 6*, *Interview*) and "insight" (*Student 13, Interview*), while others stated that the training was not emotionally involving. According to the students they have an opportunity to discuss about their feelings in debriefing, if they want, but they also felt that it is not always necessary. Additionally, some students stated that the artificial characteristics of simulation made it sometimes difficult to empathize with the simulation and, especially, with the simulator (cf. Dieckmann, et al., 2007). The critical aspect was occasionally emphasised, wherein students stated that they could critically evaluate their own learning. However, such critical evaluation of the information and the learning environment was performed to a lesser extent. Interviews revealed that a goal-oriented characteristic was slightly supported. The learning objectives of the course were clear for some students, and some had even set up their own learning goals; yet there were some students who were unaware with the general learning objectives. However, it should be remembered that during the scenarios, the patient care is always the most important goal and this was strongly acknowledged by the students. Collaborative work of students may be the factor why individuality of students were not so strongly emphasised. Especially, the experienced students were those who felt that they need more individual guidance and feedback. According to students, it depends also from their activity if their individuality was taking into account.

REDESIGNED MODEL AND CONCLUDING REMARKS

In this article, we have introduced the pedagogical model, which can be used in educational practise within healthcare education as well as the preliminary results of the first teaching experiment at the Arcada University of Applied Sciences

in spring 2009. According to these preliminary results the newly redesigned pedagogical model could be outlined (*figure 2*).
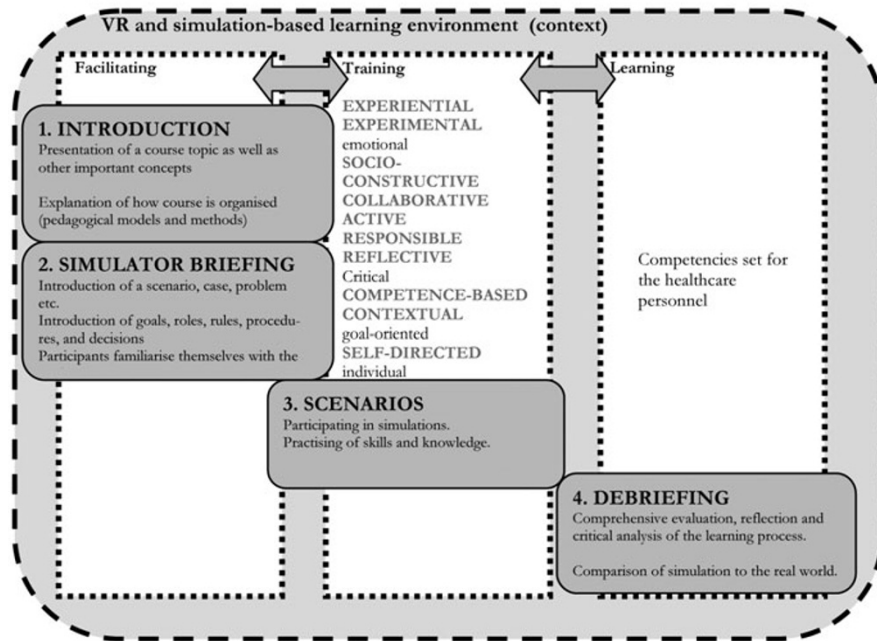

Figure 2. Redesigned VR and simulation-based learning model.

The preliminary results show that some of the predefined characteristics had a more important role than others. The characteristics that were strongly supported were *experiential, experimental, socio-constructive, collaborative, active, responsible, reflective, competence-based, contextual* and *self-directed*. These are presented in capital letters in figure 2. In the future we must consider how the *emotional, critical, goal-oriented* and *individual* characteristics could be fully realized, since they are crucial points when promoting meaningful learning (Hakkarainen, 2007; Jonassen, 1995). The *Learning through Simulation Model* (Joyce, et al., 2002) is also embedded in this redesigned model. In our VR and simulation-based learning model, the introduction and simulator briefing are considered as being facilitator-led, whereas training is student-centred. The debriefing phase is situated under the learning, since it is presupposed that learning will occur mostly in the debriefing. However, this is just a tentative analysis and the analysis process must continue in order to obtain more an extensive and more reliable picture. Final results of the analysis are presented in Keskitalo, Ruokamo and Väisänen (2010), and also rest of the data will be analysed including video recordings, questionnaires and tests.

Our DBR and the development of the pedagogical model continues by

arranging the teaching experiments at the Centre for Immersive and Simulation-based Learning (*CISL*) in Stanford University, School of Medicine (Stanford, CA, USA) and at the ENVI Virtual Center for Wellness Campus in Rovaniemi University of Applied Sciences (Rovaniemi, Finland). The ultimate goal of the development of the model is to aid healthcare education to pursue more theoretically justified education in VR and simulation-based learning environments as well as more meaningful learning of students.

REFERENCES

Brenner, M., Brown, J., & Canter, D. (1985). *The Research Interview*. London: Academic Press Inc.

Brown, A. (1992). Design Experiments: Theoretical and Methodological Challenges in Creating Complex Interventions. *Journal of the Learning Sciences*, 2, 141–178.

Cleave-Hogg, D., & Morgan, P. J. (2002). Experiential learning in an anaesthesia simulation centre: analysis of students' comments. *Medical Teacher*, 24(1), 23–26.

Cobb, S., & Fraser, D. S. (2005). Multimedia learning in virtual reality. In R. E. Mayer (Eds.), *The Cambridge handbook of multimedia learning*, (pp. 525–548). Cambridge: Cambridge University Press.

Collins, A., Brown, J. S., & Newman, S. (1989). Cognitive Apprenticeship: Teaching the craft of reading, writing, and mathematics. In L. Resnick (Eds.), *Knowing, Learning, and Instruction: Essays in honor of Robert Glaser* (pp. 453–494). Hillsdale, NJ: Lawrence Erlbaum.

Damasio, A. (2001). *Descartesin virhe. Emootio, järki ja ihmisen aivot.* Helsinki: Terra Cognita.

De Corte, E. (1995). Fostering Cognitive Growth: A Perspective From Research on Mathematics Learning and Instruction. *Educational Psychologist,* 30(1), 37–46.

Design-Based Research Collective. (2003). Design-Based Research: An Emerging Paradigm for Educational Inquiry. *Educational Researcher*, 13(1), 1–14.

Dieckmann, P., Gaba, D., & Rall, M. (2007). Deepening the Theoretical Foundations of Patient Simulation as Social Practice. *Simulation in Healthcare*, 2, 183–193.

Engeström, Y. (1982). *Mielekäs oppiminen ja opetus [Meaningful learning and teaching]*. Helsinki: Valtion koulutuskeskus.

Fanning, R. M., & Gaba, D. M. (2007). The role of debriefing in simulation-based learning. *Simulation in Healthcare*, 2(1), 115–125.

Gaba, D.M. (2004). The future vision of simulation in health care. *Quality and Safety in Health Care*, 13(1), 2–10. Retrieved August 7, 2007, from http://healthpolicy.stanford.edu/ PtSafety/OnlineDocuments/ Proj%202%20Resources/Future%20Vision%20of%20Sim%20Publ%20(M).pdf

Hakkarainen, P. (2007). *Promoting Meaningful Learning through the Integrated Use of Digital Videos*. Rovaniemi: University of Lapland Press.

Holzman, R.S., Cooper, J.B., Gaba, D.M., Philip, J.H., Small, S.D., & Feinstein, D. (1995). Anesthesia crisis resource management: real-life simulation training in operating room crises. *Journal of Clinical Anesthesia*, 8, 675–687.

Issenberg, S. B., McGaghie, W. C., Petrusa, E. R., Gordon, D. L., & Scalese, R. J. (2005). Features and uses of high-fidelity medical simulations that lead to effective learning: a BEME systematic review, *Medical Teacher*, 27(1), 10–28.

Jonassen, D. H. (1995). Supporting Communities of Learners with Technology: A Vision for Integrating Technology with Learning in Schools. *Educational Technology*, July–August, 60–63.

Jonassen, D. H., Lee, C. B., Yang, C., & Laffey, J. (2005). The Collaboration Principle in Multimedia Learning. In R. E. Mayer (Eds.), *The Cambrigde handbook of multimedia learning* (pp. 247–270). Cambrigde: Cambridge University Press.

Joyce, B., & Weil, M. (1980). *Models of teaching.* (Second edition.) New Jersey: Prentice/Hall International.

Joyce, B, Calhoun, E., & Hopkins, D. (2002). Models of learning – Tools for teaching. (Second Edition.) Buckingham: Open University Press.

Kansanen, P., Tirri, K., Meri, M., Krokfors, L., Husu, J., & Jyrhämä, R. (2000). *Teacher's pedagogical thinking. Theoretical landscapes, practical challenges.* American university studies. Series XIV, Educational vol. 47. New York: Peter Lang.

Keskitalo, T. (in progress). Students' Expectations and Teachers' Approaches – A Starting Point for Designing a Pedagogical Model for Virtual and Simulation-based Learning Environments.

Keskitalo, T. (2008). Towards Expertise – Pedagogical Approaches and Educational Tools in a Virtual Learning Environment for Health and Welfare. *Proceedings of ED-MEDIA 2008: World Conference on Educational Multimedia, Hypermedia & Telecommunications.* June 30–July 5, 2008. Vienna, Austria (pp. 3799–3808). CD-ROM. Electronic version of papers presented at ED-Media 2008 conference.

Keskitalo, T., Ruokamo, H., & Väisänen, O. (2010). How does the facilitating, training and learning model support characteristics of meaningful learning in a simulation-based learning environment from facilitators' and students' perspectives? In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 1736–1746). Chesapeake, VA: AACE.

Kneebone, R. (2003). Simulation in surgical training: Educational issues and practical applications. *Medical Education*, 37, 267–277.

Knowles, M. S. (1975). *Self-Directed learning: a guide for learners and teachers.* Cambridge: Englewood Cliffs.

Kolb, D. A. (1984). *Experiential learning. Experiences as a source of learning and development.* Englewood Cliffs. N. J.: Prentice Hall.

Lane, J. L., Slavin, S., & Ziv, A. (2001). Simulation in medical education: A review. *Simulation & Gaming*, 32(3), 297–314.

Lave, J., & Wenger, E. (1991). *Situated learning; Legitimate peripheral participation.* Cambridge: Cambridge University Press.

Moule, P., Wilford, A., Sales, R., & Lockyer, L. (2008). Students experiences and mentor views of the use of simulation for learning. *Nurse Education Today,* 28, 790–797.

Morris, P. E. (1994). Metacognition. In M. W. Eysenck, A. Ellis, E. Hunt, & P. Johnson-Laird (Eds.), *The BlackwellDictionary of Cognitive Psychology* (pp. 227–229). Cambridge: Blackwell Publishers.

Nevgi, A. & Tirri, K. (2003). *Hyvää verkko-opetusta etsimässä. Oppimista edistävät ja estävät tekijät verkko-oppimisympäristöissä – Opiskelijoiden kokemukset ja opettajien arviot [In search of good online teaching. Factors promoting and hindering learning in online learning environments – Students' experiences and teachers' evaluations].* Kasvatusalan tutkimuksia 15. Turku: Suomen kasvatustieteellinen seura.

Rall, M., & Dieckmann, P. (2005). Simulation and Patient Safety: The use of simulation to enhance patient safety on a systems level. *Current Anaesthesia & Critical Care*, 16, 273–281.

Riva, G. (2003). Applications of Virtual Environments in Medicine. *Methods Inf Med*, 5, 524–534.

Ruokamo, H., & Pohjolainen, S. (2000). Distance learning in multimedia networks project: Main results. *British Journal of Educational Technology*, 31(2), 117–125.

Ruokamo, H., Tuovinen, H., Tella, S., Vahtivuori, S., & Tissari, V. (2002). Pedagogical Models in the Design and Assessment of Network-Based Education. In P. Barker, & S. Rebelsky (Eds.), *Proceedings of the World Conference on Educational Multimedia, Hypermedia and Telecommunications 2002* (CD-ROM), (pp. 4219–4224).

Salakari, H. (2007). *Learning Practical Skills in a Virtual Environment.* Tampere: Tampere University Press.

Tissari, V., Vahtivuori-Hänninen, S., Vaattovaara, V., Ruokamo, H., & Tella, S. (2005). *Applying Pedagogical Models in Network-Based Education: Research Findings from the Finnish HelLa Project Case Studies.* Proceedings of ED-MEDIA 2005: World Conference on Educational Multimedia,

Hypermedia & Telecommunications. June 26–July 2, 2005. Montréal, Canada. CD-ROM. Electronic Version of Papers Presented at ED-MEDIA 2005 Conference, 656–662.

Uljens, M. (1997). *School Didactics and Learning*. Hove, East Sussex: Psychology Press.

Vygotski, L. (1978). *Mind in society: the development of higher psychological processes*. Cambridge: Harvard University Press.

ONLINE TUTORING FOR MEDIA EDUCATION INTERNS IN PRACTICAL TRAINING

Leo Pekkala, Päivi Hakkarainen and Harri Heikkilä

INTRODUCTION

Background and Aim of the Research

Practical training is an integral part of studies in the Master's Programme for Media Education at the University of Lapland, Finland. This three-month period has not included any simultaneous tutoring from the faculty members. Instead, students have attended a practical training seminar after the training period. During their practical training, students have relied on mentoring offered from the place of their internship. This paper describes the development, testing and implementation of an online tutoring model for supporting meaningful learning during students' practical training.

DESIGN FRAMEWORK

The Pedagogical Model for Teaching and Meaningful Learning (TML)

The pedagogical model for teaching and meaningful learning (TML) (Hakkarainen, 2007, 2009; Hakkarainen, Saarelainen, & Ruokamo, 2007, 2009) was used as the general design framework for developing the online tutoring model. The TML model (Figure 1) consists of teaching and meaningful learning, which is defined in terms of 17 process characteristics and their expected outcomes, that is, domain-specific and generic knowledge and skills. The model also includes pedagogical models or approaches as one component, which covers both the teaching and the learning processes. In the TML model, teaching and meaningful learning are understood as processes that can be realized through various pedagogical models or approaches, case-based teaching and PBL being two of these. Anderson, Rourke, Garrison, and Archer (2001) have proposed the concept of teaching presence, by which they mean "design, facilitation, and direction of cognitive and social processes for the purpose of realizing a personally meaningful and educationally worthwhile learning outcomes". Echoing Anderson and colleagues, the concept of teaching in the TML model takes a broad view of teaching activities, with these

understood to include the design and organization of the learning environment. Support and guidance is needed to prevent students from being overwhelmed, particularly in ill-structured and complex problem-solving activities.
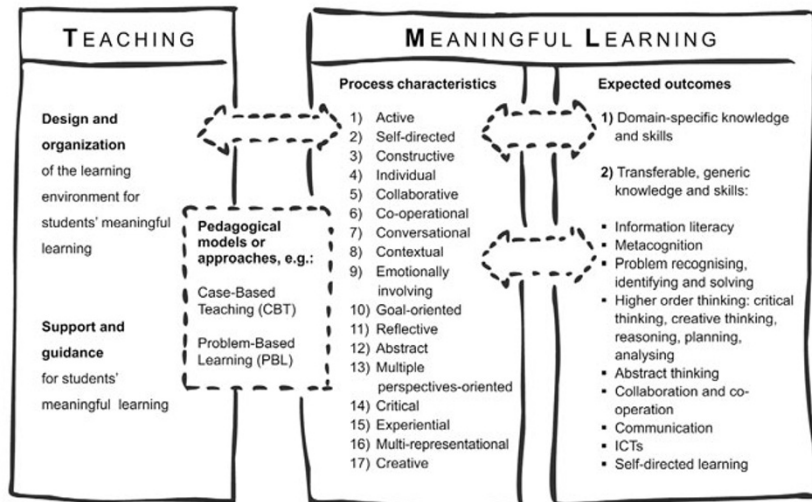

Figure 1. The TML Model (Hakkarainen, 2007, 2009; Hakkarainen, Saarelainen, & Ruokamo, 2007, 2009).

The expected outcomes of the meaningful learning processes in the TML model include: (1) domain-specific knowledge and skills and (2) transferable, generic knowledge and skills such as metacognitive skills and higher-order thinking. Transfer of learning means the ability to extend what has been learned in one context to new contexts. It can be argued that in particular the self-directed, contextual (but not overly contextualized), abstract and reflective characteristics of meaningful learning processes seem to be able to lead to transferable knowledge and skills (Bransford, et al., 2000).

We selected four characteristics of meaningful learning processes that we considered especially relevant in practical training, namely: experiential, collaborative, goal-oriented, and reflective characteristics of learning. *Experiential* characteristics mean that students can use their own experiences as starting points in learning and that they are able to apply their own practical experiences during the course. "Experiences" are understood first, as meaning students' prior practical knowledge and second, as the aims of learning. Learning should involve integrating theoretical knowledge and practical knowledge into experiential knowledge (Poikela, 2006). Working *collaboratively* makes it possible that students can exploit each other's skills and provide social support and modelling for other students (Jonassen, 1995). In a *goal-oriented* learning process, students work actively to achieve a cognitive

goal, and can define learning objectives of their own (Jonassen, 1995; Ruokamo & Pohjolainen, 2000). Intertwined with goal-orientation is the process of *reflection* (Jonassen, 1995). In a reflective learning process, students express what they have learnt and examine the thinking processes required during the process (Jonassen, 1995; Ruokamo & Pohjolainen, 2000).

In addition, we used the TML model for defining expected learning outcomes for the practical training. We considered Media Education specific experiential knowledge as the most significant expected learning outcome for practical training. This experiential knowledge includes the following knowledge and skills:
– professional identity as media educator
– problem recognising, identifying and solving,
– collaboration and co-operation,
– information literacy and communication skills, and
– ICTs.

Design-Based Research

The research is conducted as a design-based research (DBR) process. DBR in this study is understood, following Barab and Squire (2004), as developing, testing, investigating, and refining learning environment designs and theoretical constructs, such as the pedagogical models that support learning and illustrate and predict how learning occurs. This dual goal of meeting local needs and advancing the theory is a critical component of DBR (Barab & Squire, 2004; Edelson, 2002; Wang & Hannafin, 2005). The goal of DBR is to generate pragmatic and generalizable design principles (Wang & Hannafin, 2005). A DBR process proceeds through iterative cycles of design and implementation, and the researcher uses each implementation as an opportunity to collect data to support subsequent design (Edelson, 2002). Within DBR, multiple methods can be used to analyze the outcomes of an intervention and to refine it (Design-Based Research Collective, 2003; Wang & Hannafin, 2005). The methodological literature provides controversial viewpoints on the question whether DBR can be understood as action research (Heikkinen, Kontinen, & Häkkinen, 2006).

IMPLEMENTING THE PRACTICAL TRAINING

The Practical Training Module includes preliminary informational discussion after which a student has to work as a trainee for three months full time. In the traditional model this was followed by a reflective seminar work, including a written, topical paper submitted to the Faculty of Education. The objective for the Practical Training Module is to provide an opportunity for a student to know a field of work in her/his study area. The tasks can include e.g., research, educational planning, administration, project work etc.

The pilot study was conducted with five students of which three were female

and two male. Youngest of the students was 25 years old and the oldest was 36 years old. The older the student, the more previous work experience she/he had. All students had studied at least two years of university studies before entering the Practical Training. Two of the five were already close to graduation and all of them had completed bachelor level courses before starting their traineeship. This is according to the curricular framework, where the students are supposed to have completed their Bachelor degree before the Training Period.

A blended model of different online and face-to-face communications were tested for tutoring the students during their Practical Training. Figure 2 shows how students' tutoring was implemented first, before the pilot study and second, during the pilot study.
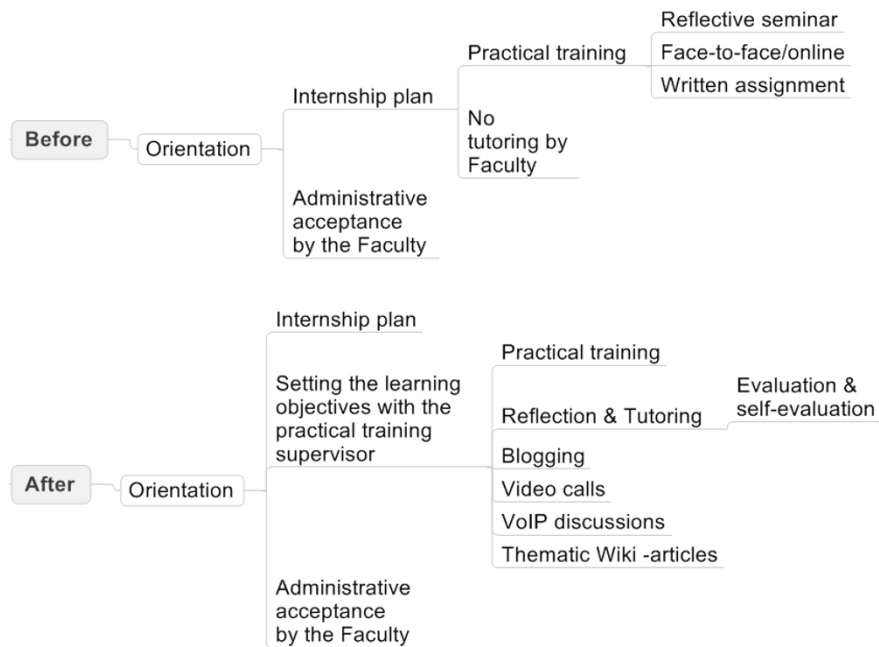

Figure 2. Implementation of Practical Training before and during the pilot study.

During the pilot study, students' learning goals were set in collaboration with the faculty tutor prior to the training period and revised during the first two weeks of the training. This discussion continued in the dedicated and password protected blog opened for the module. Simultaneously with blogging, the students and their tutor had video calls/ VoIP calls via instant messaging systems for discussing issues raised by the students.

All of the students worked at a higher education institution during their training, four of them at a university level institute and one at a polytechnic. The tasks

included, among many others, educational planning of courses, web design, conducting of small surveys, administrative organisational tasks, and various small tasks. Two students worked at the same university where the researchers are based and three worked elsewhere. This inevitably led into situation where more face-to-face meetings were held with these two home-institution based students than with those who were working somewhere else.

Documenting, preserving or possibly publishing of intellectual outcomes of the practical training period has been a challenge for academic community. Wiki was used for reflective writing and is seen as a forum for publishing experiential knowledge (Poikela, 2006) gained in the process of experiential learning. All students have also been interviewed and they have self-evaluated their training period in respect to the goals set prior to the training.

RESEARCH QUESTIONS

The research questions were the following:
  (1)   How does the online tutoring support the meaningful learning process and outcomes during Practical Training?
  (2)   What implications do the results have for the refinement of the online tutoring?

DATA COLLECTION AND ANALYSIS

The data were collected through following procedures:

Students' blog entries. A dedicated, password-protected blog was created for the Training Module. 5 students wrote blog entries during the pilot phase. There were 37 posts and 34 comments posted. Both the posts and the comments were relatively long texts, totalling up to 33 pages or over 11 000 words of text. The pilot phase lasted for 5 months between January and June 2009.

Students' wiki entries. A dedicated, password-protected wiki was created for the Training Module. However, during the pilot phase the wiki has not been as active as was anticipated. Only two students have completed wiki articles related to educational topics they have worked with during their training.

Video recordings of tutor-student video calls. Tutor-student discussions have been recorded. Discussions have been held with all five students. Some of the discussions were conducted face-to-face and video recorded, some over instant messaging system and only audio was recorded.

Interviews. All students have been individually interviewed, some twice – both at the beginning and at the end of the training period. These interviews have been video recorded.

The research data has been analysed qualitatively classifying content thematically with respect to themes relevant to the theoretical concepts of TML model used in this study.

RESULTS AND IMPLICATIONS

In the following, the results and implications are presented according to the research questions and with respect to the design framework of the study.

How Does the Online Tutoring Support the Meaningful Learning Process and Outcomes during Practical Training?

Goal setting in the beginning or even before the training helped students to focus to certain issues during their training. Goal setting which was done in writing and discussed with the academic tutor helped the students not only during the training but also after training in conducting reflective self-evaluation. This shows the intertwined nature of goal-orientation and reflection (Jonassen, 1995).

Students felt very positive about the possibility to collaborate during the training period. In the previous model there has been no collaboration between students while in internship. However, there were technical problems related to blog access with two students.

> …yes, and I wanted to say that even though we couldn't blog on this site with (student X) and we are online only now, we have been blogging between the two of us. We are conducting our training at the same university and have met often for lunch and discussed and shared our experiences (blog entry).

The blog provided an opportunity for students to reflect their own thinking, work, professionalism and relate this to their peers. Students commented on this and felt that the blog was useful for them.

Student-tutor discussions and blogging helped students to reflect especially in a situation where the tutor from their respective working place was not very active. One student described a reflective process in his thinking when writing to the blog had started. He started to reflect his own work, things that had happened during the day and sometimes even while the working day was still going on he already was thinking about how to write about this or that incident or topic to the blog. The student also discussed about how the written feedback and comments on the blog felt much better than the usual grade marks, and that the by getting the feedback he got a broader viewpoint to his own ideas.

> At the beginning it didn't work as it was meant to… when it started to roll, a process begun, that hey, I could throw in something about this or that to the environment (blog), and then it was really cool to get direct feedback, in writing, I mean that it wasn't just grade number 4 or 5, but you got some broader point of view (interview comment).

Some students reported that without the blog and instant messaging discussions with the academic tutor they would have had very little if any discussions with

other people about their work. A student who had a working place tutor who quite often didn't have enough time to tutor and mentor the student felt that online writing kept him in touch with the academic community and his studies – that he was not left alone.

> Writing at the blog replaced somewhat the small amount of face-to-face communication, it kept me in touch with the university, so I didn't actually miss the face-to-face communication since you (academic tutor) were writing all the time (interview comment).

Another remarkably positive effect the blog brought out was a possibility for students to reflect their own professional identity. This came out in blog entries written by four students, related to the tasks they were given during their training period. A student wrote a blog entry with a title "We will truly become something!"

> It is truly fun to notice how much I actually know about things. I must admit that I have feared that my degree will be useless in practical working life, but this training proved me wrong. I have been given a lot of responsibility and it has been a surprise to realise that I actually do have the needed know-how and capacity to complete these tasks (blog entry).

What Implications Do the Results Have for the Refinement of the Online Tutoring?

The results indicate the need for some design modifications for online tutoring model. It has become clear that the model is mostly functional, but not perfect as it was tested during the pilot. More detailed and clear guidelines for students for the online work are needed. The pilot phase indicated that students understood the instructions differently and some would needed more support than others. Surprisingly there were some challenges in the ICT-skills with some media students, especially related to blog and wiki usage. Social media skills seem to be focused on particular media that students are familiar with and not necessarily transferable to other social media, which was an assumption in the pilot phase. Support and discussion for asynchronous collaboration needs to be continued and possibilities for synchronous collaborative discussions need to be examined. Web conferencing tools are needed for tutoring, since the instant messaging systems are not always adequate. There is a huge variety of online environments where students are working during their training, and this puts some demand on the academic tutor in terms of providing online support. The previous model has not taken much time from the academic tutor, whereas the online tutoring is very time-consuming effort. The academic tutor needs to allocate more time for tutoring compared to what was available during the pilot phase, especially in the beginning of the training period for each student.

CONCLUSIONS

Online tutoring and support for practical training for media education students has been piloted now only for few months. The short period of piloting time and the small number of students who have participated are clear limitations to this study. However, the results from our research show some positive effects the online tutoring has had in relation to supporting meaningful learning. The students have been able to collaborate and communicate within each other while at training. This was not possible in the earlier model. They have been in communication with their academic tutor which was not possible before, at least not online. Most importantly, elements of meaningful learning processes have been recognised. Online environment and a selection of social media communication tools have encouraged students to informal communication and reflection, which in many cases has been spontaneous. It is clear that the development and improvement of the process for online tutoring will continue and more research on the elements of meaningful learning and thinking during the practical training are needed.

REFERENCES

Anderson, T., Rourke, L., Garrison, R., & Archer, W. (2001). Assessing teaching presence in a computer conferencing context. *Journal of Asynchronous Learning Networks*, 5(2). Retrieved August 15, 2009, from http://www.sloan-c.org/publications/jaln/v5n2/pdf/v5n2_anderson.pdf

Barab, S., & Squire, K. (2004). Design-based research: Putting a stake in the ground. *Journal of the Learning Sciences*, 13(1), 1−14.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.). (2000.) Committee on Developments in the Science of Learning (with Donovan, M. S., Bransford, J. D., & Pellegrino, J. W. [Eds.], Committee on Learning Research and Educational Practice) (2000). *How people learn. Brain, mind, experience, and school* (Expanded ed.). Washington, DC: National Academy Press.

Design-Based Research Collective. (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational Researcher*, 32(1), 5−8.

Edelson, D. C. (2002). Design research: What we learn when we engage in design. *Journal of the Learning Sciences*, 11(1), 105−122.

Hakkarainen, P. (2007). *Promoting meaningful learning through the integrated use of digital videos*. Doctoral dissertation, University of Lapland. Acta Universitatis Lappoensis 121. University of Lapland, Faculty of education, Finland.

Hakkarainen, P. (2009). Designing and implementing a PBL course on educational digital video production: Lessons learned from a design-based research. *Educational Technology Research & Development*, 57(2), 211−228.

Hakkarainen, P., Saarelainen, T., & Ruokamo, H. (2007). Towards meaningful learning through digital video-supported case-based teaching. *Australasian Journal of Educational Technology*, 23(1), 87−109.

Hakkarainen, P., Saarelainen, T., & Ruokamo, H. (2009). Assessing teaching and students' meaningful learning processes in an E-learning course. In C. Spratt, & P. Lajbcygier (Eds.), *E-Learning technologies and evidence-based assessment approaches* (pp. 20−36). New York: IGI Global.

Heikkinen, H. L. T., Kontinen, T., & Häkkinen, P. (2006). Toiminnan tutkimisen suuntaukset. In H. L. T. Heikkinen, E. Rovio & L. Syrjälä (Eds.), *Toiminnasta tietoon. Toimintatutkimuksen menetelmät ja*

lähestymistavat [*From action to knowledge. Methods and approaches of action research*] (pp. 39−76). Vantaa, Finland: Kansanvalistusseura.

Jonassen, D. H. (1995). Supporting communities of learners with technology: A vision for integrating technology with learning in schools. *Educational Technology*, July−August 1995, 60−63.

Poikela, E. (2006). Knowledge, knowing and problem-based learning – Some epistemological and ontological remarks. In E. Poikela, & A. R. Nummenmaa (Eds.), *Understanding problem-based learning* (pp. 15–31). Tampere, Finland: Tampere University Press.

Ruokamo, H., & Pohjolainen, S. (2000). Distance learning in multimedia networks project: Main results. *British Journal of Educational Technology*, 31(2), 117–125.

Wang, F., & Hannafin, M. J. (2005). Design-based research and technology-enhanced learning environments. *Educational Technology Research and Development*, 53(4), 5−23.

CONTRIBUTORS

Christine Arnold, Brock University, Canada
Phil Bayliss, University of Exeter, United Kingdom
Anne Benjamin, Australian Catholic University, Australia
Maureen Boyle, Australian Catholic University, Australia
Jo Brady, Australian Catholic University, Australia
Carolyn Broadbent, Australian Catholic University, Australia
Jude Butcher, Australian Catholic University, Australia
Dawn Casey, PowerHouse Museum, Sidney, Australia
Allie Clemans, Monash University, Australia
Patrick Dillon, University of Eastern Finland, Finland
Freema Elbaz-Luwisch, University of Haifa, Israel
Susan Gilbert, Lees-McRae College, United States
Lisa Gross, Appalachian State University, United States
Päivi Hakkarainen, University of Lapland, Finland
Harri Heikkilä, University of Lapland, Finland
Riitta Jyrhämä, University of Helsinki, Finland
Stephen Keast, Monash University, Australia
Liisa Keltikangas-Järvinen, University of Helsinki, Finland
Tuulikki Keskitalo, University of Lapland, Finland
Michael Kompf, Brock University, Canada
Helena Koskinen, University of Lapland, Finland
Mary Koutselini, University of Cyprys, Cyprys
Leonidas Kyriakides, University of Cyprys, Cyprys
John Loughran, Monash University, Australia
Paulien C. Meijer, Utrecht University, the Netherlands
Bianca Miranda, Monash University, Australia
Ian Mitchell, Monash University, Australia
Judie Mitchell, Monash University, Australia
Wendy Moran, Australian Catholic University, Australia
Sari Mullola, University of Helsinki, Finland
Lefkios Neophytou, University of Nicosia, Cyprys
Marea Nicholson, School of Education NSW, Australian Catholic University, Australia
Graham Parr, Monash University, Australia
Leo Pekkala, University of Lapland, Finland
Amanda Perry, Monash University, Australia
Philip Riley, Monash University, Australia
Heli Ruokamo, University of Lapland, Finland
Shukri Sanber, Australian Catholic University, Australia
Maggi Saven-Baden, Coventry University, United Kingdom
Chris Sidoti, Australian Catholic University, Australia

Anthony Steel, Australian Catholic University, Australia
Erja Syrjäläinen, University of Helsinki, Finland
Elisabeth Tudball, Monash University, Australia

REVIEWERS

Antonia Aelterman, Ghent University, Belgium
Miriam Ben-Beretz, University of Haifa, Israel
Carolyn Broadbent, Australian Catholic University, Australia
Jude Butcher, University of Lapland, Finland
Julie Clark, Australian Catholic University, Australia
Cheryl J.Craig, University of Houston, United States
Freema Elbaz-Luwisch, University of Haifa, Israel
John Elliot, University of East Anglia, United Kingdom
Eila Estola, University of Oulu, Finland
Anneli Eteläpelto, University of Jyväskylä, Finland
Maria Flores, University of Minho, Portugal
Philip Gammage, University of Nottingham, United Kingdom
Päivi Hakkarainen, University of Lapland, Finland
Jukka Husu, University of Turku, Finland
Pirkko Hyvönen, University of Oulu, Finland
Eila Jeronen, University of Oulu, Finland
Riitta Jyrhämä, University of Helsinki, Finland
Pertti Järvinen, University of Tampere, Finland
Raimo Kaasila, University of Lapland, Finland
Pertti Kansanen, University of Helsinki, Finland
Keiny, Shoshana, Ben-Gurion University of the Negev, Israel
Michael, Kompf Brock University, Canada
Fred Korthagen, Utrecht University, the Netherlands
Kristiina M. Krause, University of Helsinki, Finland
Kristiina Kumpulainen, Finnish National Board of Education, Finland
Heikki Kynäslahti, University of Helsinki, Finland
Anneli Lauriala, University of Lapland, Finland
Per F. Laursen, University of Copenhagen, Denmark
John Loughran, Monash University, Australia
Anneli Niikko, University of Eastern Finland
Säde-Pirkko Nissilä, Oulu University of Applied Sciences, Finland
Leo Pekkala, University of Lapland, Finland

282

Raimo Rajala, University of Lapland, Finland
Eero Ropo, University of Tampere, Finland
Heli Ruokamo, University of Lapland, Finland
Pirita Seitamaa-Hakkarainen, University of Eastern Finland, Finland
Kari Smith, University of Bergen, Norway
Ciaran Sugrue, University of Cambridge, United Kingdom
Harm Tillema, Leiden University, the Netherlands
Kirsi Tirri, University of Helsinki, Finland
Tuija Turunen, University of Lapland, Finland
Tapio Varis, University of Tampere, Finland