What Should Canada's Teachers Know?

Teacher Capacities: Knowledge, Beliefs and Skills

CATE / ACFE
Canadian Association for Teacher Education
Association Canadienne de la Formation en Enseignement

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Cover Art: Bell-Smith, Zoe

Cover Design: Bell-Smith, Zoe

Editors: Hirschkorn, Mark & Mueller, Julie

ISBN 978-0-9947451-6-3

Acknowledgements

We would like to thank our amazing hosts at the Ontario Institute for Studies in Education (OISE) of the University of Toronto (UofT), in particular Dr. Ann Lopez, for all of their help and generosity in helping us put this working conference together.

We were inspired by Dr. Ruth Childs, Associate Professor in the Department of Leadership, Higher and Adult Education at OISE/UofT who delivered the opening plenary speech entitled *School Furniture, Fractions, and Students who are Habitually Idle: 150 Years of Debate about What Teachers Should Know and Who Should Decide.* Thank you Ruth, for getting us thinking about what we do in teacher education programs.

We would like to thank all of the authors who contributed a chapter to this book, who as participants in the 8th CATE teacher education working conference, were the source for this publication and are instrumental in the success and use of the book.

Thank you to the CATE executive and CSSE for their ongoing support of the working conferences and the subsequent publications.

We would like to thank Gordon Marce who did a wonderful and thorough job of copyediting this publication and Zoe Bell-Smith who conceptualized and created the wonderful cover for the book.

Finally, we would like to thank our predecessors and mentors who continue to inspire us with their leadership and examples; Thomas Falkenberg, Hans Smits, and Lynn Thomas.

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Introduction to the CATE Working Conference Process

This book is the sixth volume in a series of publications derived from teacher education working conferences organized by the Canadian Association for Teacher Education (CATE). These working conferences were begun in 2007 by then president of CATE Thomas Falkenberg of the University of Manitoba with help from Hans Smits of the University of Calgary. They wished to bring together Canadian scholars in teacher education to discuss and debate key issues in the field of teacher education. In 2009 the working conference began requiring participants to contribute a chapter to a published book related to the theme of the conference in order to encourage cross-institutional collaboration and in an attempt to build a corpus of research on teacher education topics that is distinctly Canadian. In 2011, the CATE executive took on this responsibility from Thomas and Hans and has been organizing the conference and publishing the resulting book since.

The CATE working conferences are an innovative approach to promoting collaboration and scholarship in Canadian teacher education. They are held every 2 years (although initially they were held annually) by a Canadian university who has volunteered to host, are open to academics and graduate students, and require participants to submit a chapter proposal focused on the theme of the conference. These proposals become the conversational focal point of working groups in which each author takes a turn presenting his or her work and then hosts the subsequent discussion, all the while recording the feedback from the other participants. This feedback and discussion informs the authors after the conference as they complete their chapters and submit them to a review process managed by the conference organizer and book editors. The books are published approximately 1 year after each working conference and to date have resulted in the following volumes:

- *Field Experiences in the Context of Reform of Canadian Teacher Education Programs* (Falkenberg & Smits, 2010)

- *The Question of Evidence in Research in Teacher Education in the Context of Teacher Education Program Review in Canada* (Falkenberg & Smits, 2011)
- *What is Canadian about Teacher Education in Canada? Multiple Perspectives on Canadian Teacher Education in the Twenty-First Century* (Thomas, 2013)
- *Becoming Teacher: Sites for Teacher Development in Canadian Teacher Education* (Thomas, 2014)
- *Change and Progress in Canadian Teacher Education: Research on Recent Innovations in Teacher Preparation in Canada* (Thomas & Hirschkorn, 2015)

This volume is the result of the working conference hosted by the Ontario Institute for the Study of Education (OISE) of the University of Toronto in the fall of 2015. The theme of the conference was *What Should Canada's Teachers Know? Teacher Capacities: Knowledge, Beliefs, and Skills*, and participants were asked to submit a chapter proposal focused on one of the four sub-questions derived from the theme. These four questions have gone on to become the sections of this book and thus the conceptual and organizational framework for the volume.

Introduction to the Topic of this Book

When we teach, presumably we have a goal or purpose for what we want that class and its constituents to accomplish; it fits some larger developmental whole we envisage for our students. We believe this is true of any teacher, and those of us who teach in education programs at universities are no exception to this education fundamental. Yet teacher education programs work with prospective teachers that are destined to work in a wide variety of contexts, and thus must find ways to allow individuals to engage personally with what is offered while maintaining more general program-wide experiences and certification requirements. So what do teacher education institutions intend for their students to learn within the boundaries of their programs? Even finding language to describe what we want education

students to learn can be problematic, as this language often brings with it conceptions and precedents of potentially negative consequence.

C. Grant (2008), using an American frame of reference, was the source for the definition inherent within the theme of the working conference and the title of this book. Ironically, even though the term *teacher capacity* is often used to convey a definitive quality that can be ticked off and assessed (e.g., "you have mastered 60% of the curriculum, and can perform these 5 skills . . ."), Grant suggests that teacher development is more complex and depends heavily on getting students to engage with what have been labelled as social justice experiences and conversations. We were intrigued by the duality that Grant presents: that teaching and teachers are composites of societal expectation or norms (derived from at least three Western historical precedents that he discusses), all the while being encouraged to be something more enlightened and just. As teacher educators, on the one hand we must find the balance between the broad-strokes expectations of our school systems and the certification process, and on the other hand finding contextually specific ways for each individual to become the best teacher they can be.

Further complicating the conversation regarding what teacher educators seek to have their students learn is an acknowledgement that many aspects of teachers are present before they walk through the doors of our education faculties; and those features will continue to evolve after they graduate. Many models of teacher education (Canadian and international) acknowledge that teachers will continue to grow as professionals after they graduate (e.g., Caena, 2014; An Chomhairle Mhúinteoireachta/The Teaching Council, 2011) and that their prior knowledge and experiences are significant factors in their development as teachers (Russell, 2009; Dulude Lay, Pinnegar, Reed, Young Wheeler, & Wilkes, 2005; Falkenberg, 2010; Richardson, 2003; Lortie, 1975). Teacher educators are no longer operating and working within programs that assume teacher candidates are *tabula rasa* when beginning and polished and perfected teachers when they graduate.

Much like K. Grant (2015) we believe that teacher education is not the pursuit or creation of an idealized and ubiquitous *good teacher*, despite the checklists, inventories, and stereotypes available in the literature and media. It is a conversational and contested space, in which we engage teacher candidates who come to us with a wide array of school and interpersonal experiences and offer them venues, time, and activities that allow them to grow individually and contextually. Every student, grade level, subject, classroom, school, and community is different, and a one-size-fits-all program model does not prepare teachers for this contextual variability, even if it provides teachers with broad-strokes capacity. Yet, we work within institutions governed by policy and generalized certification requirements; we work in large classes with many different individuals listening to and experiencing our teaching. There will always be a tension between what we can do for groups of prospective teachers as education programs and how we find ways to operationalize and contextualize the experience for the individual.

Our programs have structures, emphases, and rhythms, but the chapters in this book suggest that our purposes as teacher educators are becoming more complex than the traditional transference of school norms so that our graduates can meet the competency checklists still present within the school systems. In this volume we have confronted the authors with the task of considering what teacher capacities (knowledge, beliefs, and skills) they intend for their students to have as they send them out into the world of education, and to consider the individual and the institution in their arguments. Perhaps the wide variety of perspectives offered by the authors in this book serves as one form of conversational, contextual, and contested space in which Canadian teacher education can grow.

Introduction to the Chapters of this Book

This book is composed of answers to more specific questions that begin to explore the broader inquiry as to what Canada's teachers should know. The 21 chapters that form this volume are divided according to their consideration of one of four focus questions examining a) the impact of globalization on the teacher capacities in Canada; b) how capacities are developed and influenced during and after teacher education programs; c) how teacher education programs measure capacities and are held accountable for the development of these capacities; and d) how these capacities may or may not serve the needs of a diverse student body. The chapters are not evenly distributed across parts of the book but are grouped in order according to the questions addressed.

Part I of the book examines the question, *How does the global teacher education context influence what capacities Canadian teachers are expected to develop?* In Chapter 1 a group of researchers from New Brunswick—Amanda Lagace, Marcea Ingersoll, Mark Hirschkorn, and Alan Sears—collaborate with Grace McCallum from the Canadian International School of Beijing to address the impact of globalization on education both in terms of the increased diversity of classrooms within Canada and the movement of Canadian teachers to contexts beyond our borders. In Chapter 2, Diana Petrarca and Julian Kitchen continue to examine teacher education as a contested space in the Canadian context, providing a framework for mapping teacher education programs to allow deeper comparison and further research as to the impact of components and practices. Following this call for examination of teacher education programs, in Chapter 3 Kim Koh, Jennifer Lock, B. Paris, and M. Niayesh, from the University of Calgary, analyze global and national trends using a specific example of teaching assessment and curriculum redesign, ending with a discussion of implications for practice.

Part II is the largest section of the book and addresses *how essential capacities for new teachers are identified and cultivated within teacher education programs* and *how the capacities that are*

developed by teachers prior to and following their education programs influence the education program. Authors responding to these foci included examination of variables that impact educators both in pre-service teacher preparation and in current practice. The first of five chapters in Part II address varied components of teacher education across several provinces including teacher capacities, teacher professionalism, environmental education capacities, innovative practica, and critical capacities for thinking with theory. An overview of research-informed and adaptive teacher education is examined in Chapter 4 by Jim Brandon, Sharon Friesen, Dianne Gereluk, and Jodi Nickel using the Association of Alberta Deans of Education's five principles of effective teaching. Nipissing researchers Glenda Black, Kurt Clausen, and Barbara Olmsted are the authors of Chapter 5 and use a case study to examine "professionalism in teaching," including interviews with associate teachers, faculty members, and a Dean. Teacher capacities specific to Environmental Education and their role in Ontario Faculties of Education are examined by Doug Karrow, Xavier Fazio, Maurice DiGiuseppe, Paul Elliott, Hilary Inwood, and David Greenwood in Chapter 6 with a generic model of initial teacher capacity including "experiences/natures" and "competencies." In Chapter 7 Patricia Danyluk and Amy Burns examine teacher capacities for 21st-century learning through experiential learning as part of a practicum experience on a housing construction site. A theoretical approach to pre-service teacher capacity based on Bourdieu's social field theory is described in Chapter 8 by Kathleen Nolan and Jennifer Tupper.

The last four chapters in Part II examine in-service teacher capacity using case studies, surveys, interviews, and focus groups in various contexts and disciplines. In chapter 9 Jennifer Mitton-Kükner and Anne Murray Orr provide insights into the benefits for teacher education programs of following early career teachers with their examination of the development of literacies as emerging pedagogies in content areas. Chapter 10 continues in the context of beginning teachers as Lynn Driedger-Enns, M. Shaun Murphy, Lee Schaefer, Carla Nelson, Yi Li, and Janice Huber contribute to the ongoing

discussion of teacher identity in a case study of a beginning teacher as she comes to know her children, herself, and the tensions she experiences as her personal and professional knowledge landscapes collide. The rural context, as a particular teaching experience, and its impact on pre-service teacher education programs is explored by Lynn Lemisko, Laurie Hellsten, and Carol Demchuk-Kosolofski from the University of Saskatchewan and the Prairie Spirit School Division in Chapter 11. The final chapter of Part II, Chapter 12, written by Alexandre Mesquita and Lynn Thomas, addresses gaps in teacher capacity, identifying assessment as an area needing a great deal of support for novice teachers to build the necessary confidence to assess students in authentic classrooms.

The focus of Part III addresses *measurement and accountability with regards to teacher capacities*. The complexity of these aspects of teacher education, and the sometimes difficult conversations regarding how we evaluate outcomes and who is responsible for ensuring that the capacities are developed, could be contributing factors to why this part of the book drew only two chapters. In Chapter 13 Victorina Baxan, Karen Ragoonaden, and Awneet Sivia tackle the question of the development of teacher education candidate's conceptualization of diversity. Gladys Sterenberg, David Dillon, and Kevin O'Connor in Chapter 14 look to the practicum portion of their program to address shortcomings of most teacher education programs through a "practice-and-theory" approach of integrating the knowledge, dispositions, and practical teaching of candidates, focusing on the evaluation of teacher capacity.

Part IV addresses the fourth focus of *whether our current Canadian teacher education graduates have the capacities to meet the needs of students with regards to emerging technologies and the increasing diversity of K–12 classrooms*. The first two chapters in this section explore the impact of a digital world on the capacities that teachers require to meet the needs of their students. Chapter 15, by Mary Jane Harkins and Zhanna Barchuk, explores the use of Universal Design for Learning (UDL) as a

framework for teaching an increasingly, technologically immersed student population. Chapter 16 shifts the focus to how knowledge, skills, and attitudes are defined as capacities for teachers in this 21st-century learning context, which is further explored by Eva Brown and Michele Jacobsen in relation to technology integration and teacher certification requirements in Western Canada.

The final five chapters more directly examine how traditionally marginalized students are influencing the capacities that new teachers need. In Chapter 17, Amanda Ferguson and Ruth Childs present a general overview of the necessary capacities and possible barriers for beginning teachers who seek to effectively address equity and diversity. In Chapter 18, Cathryn Smith, Paul Betts, and Lee Anne Block provide a thoughtful addition to consideration of critical teaching in their examination of the conditions within which both pre-service and in-service teachers are able to respond meaningfully to the needs of marginalized students. Clea Schmidt and Antoinette Gagne, in Chapter 19, delineate four critical assignments implemented in their radical teacher education practice that is based on pedagogy that affirms the diversity inherent in multilingual schools. In Chapter 20, Scott Douglas furthers the discussion of language diversity and its impact on teacher capacities with a qualitative study of elementary teacher candidates taking an additional language teaching and learning course. The final chapter of this section and the book, Chapter 21, considers the capacity of teacher graduates to address the needs of students who need to stay focused and alert in their learning. Nan Stevens and Kim Calder-Stegemann present the benefits of sensory regulation methods and suggest a need for teachers to include this approach in their classrooms.

Teaching is difficult work that requires new and experienced teachers to respond to an immense range of contextual opportunities and difficulties. Our teacher education institutions and the teacher educators who work within them are well positioned to question how we prepare people for the classroom. This book is evidence that there is no longer a one-model-fits-all mentality prevailing in

Canadian teacher education, rather, teacher educators are embracing the context of their communities, provinces, and the world to provide critical conversations and experiences for their students. The 21 chapters within this book present both general and specific consideration of how Canadian teacher educators seek to prepare teachers, what they value and believe integral to the development of teachers. As editors, we are buoyed by the potential discussed in this book, by the response of the authors to the current landscape of education in Canada and the solutions and suggestions being presented. It would be difficult to synthesize a coherent teacher education program solely from the chapters of this book, but the authors provide the reader with rich and well grounded descriptions that perhaps serve as a frame of reference to consider in light of our own priorities and practices.

In short, as teacher educators we will continue to operationalize the question in the title of this book—What should Canada's teachers know?—differently. But it has been fascinating for us as editors to consider what we do as teacher educators in light of what we read from our colleagues. The future of Canadian teacher education is bright indeed.

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Part I

How does the global teacher education context influence what capacities Canadian teachers are expected to develop?

Chapter 01: Preparing Canadian Teachers for the World

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Abstract

Globalization is a complex and multifaceted phenomenon that has significant implications for education generally and teacher education in particular. One feature of globalization in education is the movement of educators around the world to work in a variety of contexts. The qualitative pilot study described in this chapter examines the experience of 12 Canadian teachers working in two contexts: a Canadian international school in East Asia and as overseas trained teachers in schools in England. The study focuses on two interrelated questions: What competencies do teachers need to teach successfully internationally? And, how might those competencies be addressed in teacher education? Participants' responses to interview questions were analyzed by our research team and are presented under five themes: context, motivation, challenges, competencies, and preparation. Eight questions are raised for consideration by initial teacher education programs.

Preparing Canadian Teachers for the World

Introduction

Globalization is a complex and multifaceted phenomenon that has huge implications for education generally and teacher education in particular (Chong et al., 2016; Harber, 2014; Hargreaves & Shirley, 2012; Reid, Gill, & Sears, 2010). Sahlberg (2011), for example, popularized the term GERM (Global Education Reform Movement) to highlight the ubiquitous influence of global capitalism on policy and practice in education around the world. He argues that GERM has impacted—or infected—education systems around the world and includes five key elements: "standardization," "increased focus on core subjects," "prescribed curriculum," and "transfer of models from the corporate world" (pp. 100–101).

In addition to the international transfer of ideas and policies, a central feature of globalization is the movement of people around the world and the consequent intersection of cultures. One result of this is the transformation of Canadian schools and classrooms, including those in rural areas of the country, into much more diverse places (Hamm, 2014). Another consequence is the movement of educators around the world to work in a variety of contexts (Brummit & Keeling, 2013). We know that Canadian teachers are going overseas in increasing numbers, and that they are pursuing a variety of international teaching options. Common avenues for entry into the global teaching arena include positions as English language teachers (ELTs) in South Korea, overseas-trained teachers (OTTs) in England, and classroom teaching positions at international schools around the world. These contexts are all quite different, some involving teaching national curricula, some international curricula, and some ESL/EAL. These differences all have implications for teacher preparation, and addressing them would add greatly to the complexity of teacher education.

The deans of Canadian faculties of education recognize this trend and have moved to address it at the policy level. Their *Accord on the Internationalization of Education* (Association of Canadian Deans of Education, 2014) addresses both the increasing diversity of Canadian society and the enhanced opportunities for mobility among Canadian educators, including opportunities for international teaching internships as part of initial teacher education programs. International teaching practicum options, program tracks, elective courses, and service learning opportunities are available at many of Canada's 51 teacher education programs (Larsen, 2016). Program model design and delivery occurs at the individual university level, but initial teacher education (ITE) programs are guided by provincial guidelines and international education is generally seen as a "unique" or alternative offering (Gambhir, Broad, Evans, & Gaskell, 2008, p. 11; Harkins & Barchuk, 2015). A national study published in 2008 concluded, "The majority of ITE programs at faculties of education focus on preparing teachers for the Kindergarten to Grade 12 school system" in Canada (Gambhir et al., 2008, p. 10). This corresponds with recent international research that also highlights the somewhat slow response of teacher education programs when it comes to preparing teachers for a career beyond local borders (van Werven, 2015). One of the factors inhibiting attention to international teaching in ITE might be that teacher education programs in Canada receive a significant amount of their funding from provincial governments that are understandably focused on preparing teachers for their particular contexts.

The general theme for this collection is, What should Canada's teachers know? This chapter concentrates on the first focus question flowing from that theme: How does the global teacher education context influence what capacities Canadian teachers are expected to develop? We know Canadian teachers are taking up international opportunities, but there is a paucity of research on international teaching generally, and the number of studies focusing on Canadian teachers is even more limited. It was with this lack of scholarship in mind that our team designed the pilot study reported on in this

chapter. We interviewed Canadian teachers with experience in two different international contexts: one group of OTT teachers in England, and another group of teachers at an international school in a large city in Southeast Asia. We asked participants a number of questions, but our particular focus was on finding out how well they felt their initial teacher education (ITE) programs equipped them for working internationally, and exploring what those programs might do to be more effective in preparing graduates to work in a range of international contexts. Our purpose was to begin a program of research exploring how ITE programs in Canada might better prepare teachers for working internationally.

Review of Literature

A number of themes show up in the literature on international teaching, and we identified five relevant to our study: international educator recruitment and retention; international educator adjustment in national public schools; self-efficacy and international schools; international teacher competencies; and preparing globally competent educators.

International Educator Recruitment and Retention

The competition for qualified teachers is global, with thousands of international educators leaving their positions each year and the pool of quality applicants insufficient to meet demand (Keeling, 2013; Kellet, 2015). The disruptive element of teacher turnover is well-established in the literature on effective schools (Ingersoll, 2001; Ronfeldt, Lankford, Loeb, & Wycoff, 2013). Continuity and high morale are associated with schools that have low turnover rates, and the economic impact of teacher turnover is also significant, particularly in the international arena.

There are a number of reasons why international teachers leave their schools. Broadly, they leave to move to other international schools, to return to their countries of origin, or to depart from the

profession entirely. Researchers have explored the reasons teachers stay at or leave their international schools. Location (Mancuso, Roberts, & White, 2010), leadership (Chandler, 2010), administration, compensation, and personal circumstances (Odland & Ruzicka, 2009) have been found to play a role. In an early study of why good teachers might decide to stay beyond their initial two-year contracts, Hardman (2001) identified a pattern of profiles and categorized teachers in an attempt to provide practical guidelines for effective recruitment and retention of quality educators. Four main profiles emerged in Hardman's study: (a) childless career professionals, (b) mavericks, (c) career professionals with family, and (d) senior teachers.

International Educator Adjustment in National Public Schools

A sense of well-being in one's personal and professional lives is important to the successful completion and potential renewal of any employment contract. For teachers moving to another country, establishing a sense of well-being early on is important. In studies of other expatriate groups, adjustment, or "the person's ability to function effectively, personally and vocationally, in the new environment," as well as culture shock have been factors considered in the failure of expatriate employees in their postings (von Kirchenheim & Richardson, 2005, p. 409). Across expatriate employee groups, rates of early contract termination range from 30% to 50%; in developing countries rates as high as 70% have been reported (von Kirchenheim & Richardson, 2005). The stress of relocating for work is well-documented, but the research on Canadian teacher relocation for international positions is not robust.

In response to the shortage of primary and secondary teachers, England recruits teachers from abroad to staff classrooms in its national education system (Maylor, Hutchings, James, Menter, & Smart, 2006) . There is limited research on these overseas-trained teachers (OTTs), and specific empirical

research on Canadian teachers in England is either not available or not easily found. Miller (2008) highlights the vast numbers of OTTs being recruited and deployed in England's schools, but the lack of support for their integration into the schools and English society. According to Miller, there were an estimated 43,000 OTTs, but "neither the Department for Education and Skills (DfES) nor the Training and Development Agency for Schools knows the current numbers of OTTs working in England" (p.281). In Miller's argument for a model of integration to support OTTs, he notes that "OTTs are as good as the support they receive" (p. 283) and that the "UK has not adapted to OTTs well, and some OTTs have not adapted to the UK well" (p. 284).

Self-Efficacy and International Schools

There is research to suggest that self-efficacy and locus of control may be important characteristics of international school teachers (Bunnell, 2005; Coulter & Abney, 2009). In a causal comparative study of teacher burnout in 61 Canadian teachers in Ontario and 41 teachers at Ontario-curriculum international schools, Coulter & Abney (2009) found that rates of burnout were significantly lower for international school educators than for teachers working in Canada. Their results suggest that a positive correlation between international teachers whose internal locus of control is higher and burnout levels are lower also indicates that perhaps successful international teachers have high rates of self-efficacy. Coulter & Abney make recommendations for further study of the locus of control and self-efficacy of international teachers. Other studies, such as Bunnell's (2005) work on positive career metaphors and the international school teacher, also point to self-efficacy as a potential characteristic of teachers who remain overseas following an initial contract. Participants in his study reported positive career metaphors that emphasize the journeying nature of their international careers, with comments such as "I'm following a path," "I'm following a goal," and "I'm on course" being dominant metaphors

for one third of the respondents in a study of the career metaphors of 24 teachers at one international school. Both studies suggest a locus of control that is firmly within the teacher and support the notion that self-efficacy is perhaps a key characteristic of successful international educators.

International Teacher Competencies

While self-efficacy and flexibility may be desired characteristics of teachers who go abroad, what are the specific competencies that administrators and schools are looking for in their staff? How might teacher education programs incorporate specific competencies into teacher preparation? How can these competencies be defined?

Every school and administrator wants to hire quality teachers, although there is debate about what qualities and competencies are desirable (Gambhir et al., 2008; Goodwin, 2010). In addition to quality teachers, international school educators have sought to outline the particular competencies of educators who are a good "fit" into the international teaching lifestyle (Joslin, 2002). One researcher offers the following acronym for identifying qualities that underscore a good fit:

M Mental flexibility to reframe fields of reference
E Ethnorelativist view of the world
A Awareness of one's own cultural heritage
S Sensitivity to different cultures
U Understanding of the nature of the range of international schools
R Respect for other cultures (not just tolerance)
E Emotional balance
U Understanding of education in an international context
P Professional/technical expertise

(Joslin, 2002, p. 52)

Another characteristic purported to be necessary for teachers in an increasingly intercultural world is global-mindedness or international-mindedness (Duckworth, Levy & Levy, 2005; Hayden & Thompson, 2011; Hill, 2015; Zhao, 2010). In a study of 90 pre-service and in-service international educators, internationally or globally minded teachers were defined as those who "possess an ecological

world view, believe in the unity of humankind and the interdependence of humanity, support universal human rights, have loyalties that extend beyond national borders, and are futurists" (Hett, as quoted in Duckworth et al., 2005, p. 280). Strongly homogenous views of international-mindedness were found across the responses, who were predominantly female, middle class, and born or raised in the United States. Some demographic variations were noted: while 67% were born in the United States, 33% were from Canada, the Middle East, Western and Eastern Europe, Africa, South America, India, Asia, and Australia. Views of international-mindedness remained stable across all demographic groups.

The language of instruction in international schools is English, and the expectation of stakeholders is that teachers will have native or near-native fluency in English (Canterford, 2003; Fail, 2011). In sourcing teachers from predominantly Anglo-Western nations (Garton, 2002) international schools are on one level hiring teachers with native speaker fluency. On another level, they may also be recruiting for competencies that are specific to the social class backgrounds of those who tend to take up teaching. In most international schools, the predominant style of learning and teaching is a Western, liberal-humanist, student-centred, constructivist approach which is likely familiar to those recruited to teach in international schools (Bates, 2011; Tamatea, 2008).

Preparing Globally Competent Educators

Levy and Fox (2015) identify 10 categories that are important for teacher preparation programs intent on preparing globally competent educators:

1. Coursework specific to a particular region, culture, or issue
2. Intercultural competence
3. Second language acquisition and the role of language and power
4. Multilingualism
5. Culturally responsive pedagogical skills
6. Field experiences that are in-depth and cross-cultural
7. Formative and summative assessments evaluating global competence
8. Teacher inquiry and research into diverse contexts, pedagogies, and discourses

(pp. 280–281).

For universities considering the competencies required for the international school context, van Werven (2015) suggests the following:

> The international schools of today and the future, in all their diversity, are in need of teachers who are flexible, interculturally competent, internationally oriented and linguistically talented. This requires universities and other organizations to act globally if their programmes are to prepare teachers for the international schools of the future. (pp. 306–307)

Considering the characteristics of excellent teachers is insufficient, and research and teacher education programs must also consider what characteristics make excellent international teachers who are prepared to teach any group of students in any region (Zhao, 2010: Duckworth et al., 2005).

Our Study

Our team came to this study for both personal and professional reasons. All of us have experienced teaching in international contexts, some in national school systems, and others in international schools. Those experiences left us with a number of questions about how we, and our colleagues, might have been better equipped to take on the challenges of working internationally. Three of us are now teacher educators and every year have students graduate from our programs and take up international teaching opportunities. Those graduates with whom we maintain contact often tell us they were not particularly well prepared to meet the challenges they faced working overseas. In recent years our programs have moved to pay some overt attention to this phenomenon by adding courses in international education and teaching in a second language environment, as well as offering the opportunity to do parts of the practicum internationally. However, these opportunities are optional and available to or taken up by a relatively small number of students. One of us is an administrator in an international school and from that perspective interested in issues of teacher preparation, performance,

and retention. What unites us is our sense that ITE programs in Canada, and particularly the ones with which we are associated, could do much more to address the trend toward international teaching that would be beneficial for preparing professional educators both for work at home and abroad.

To that end our study addresses two central research questions:

1. What competencies do teachers need to teach internationally?
2. How might those competencies be addressed in initial teacher education and in-service teacher education?

To address these questions we designed a pilot study drawing participants from two cohorts: seven Canadian teachers with recent (and in some cases ongoing) experience working as OTTs in England; and five Canadian teachers/administrators working at an international school in a large city in East Asia. As this is a pilot study we hope will lay the foundation for a larger body of work, the participants are a convenience sample drawn from people members of our team know personally or referred to us by other participants.

All of the participants (10 females and 2 males) were Caucasian Canadian teachers ranging in age from 24 to 33 and relatively new in their careers, having between 2 and 10 years of teaching experience. All except two began their teaching careers in international contexts. The participants vary in job roles. In addition to teaching several had administrative, supervisory, or mentoring responsibilities. For example, several are program or subject coordinators who also serve as instructional coaches for teachers.

Each participant engaged in a semi-structured interview lasting between 40 minutes and an hour. The interviews were transcribed and distributed to all members of the research team. In order to work towards consistency in analyzing the transcript data all five members of the team independently reviewed two transcripts, one from each cohort. Drawing on analysis techniques from phenomenography (Peck, Sears, & Donaldson, 2008) each researcher independently identified utterances. An utterance is

defined as a portion of a sentence that describes the phenomenon under study. Dale (1976) defines an utterance as "a verbal manifestation that conveys a meaning or evidence of understanding" (p.7). Repeating or recurring points of view or ideas were identified in the utterances, and these were clustered and classified into themes. We then compared results on the first two transcripts and worked toward a common set of themes to explore in the remainder, leaving open the possibility new themes might emerge. Following that, the remainder of the transcripts were analysed separately by members of the team, with each preparing a written summary of findings related to the agreed upon themes. Those summaries were then used to develop the final set of findings for the study.

Findings and Discussion

As we begin to discuss our findings it is important to remember this is a small scale, preliminary study and therefore the results cannot be generalized to other contexts. Rather, we use them as a basis for formulating a set of questions that might be explored in future research, and which ITE programs might consider in thinking through how they could enhance the preparation of teachers for working internationally. Having said that, we were struck by how well our findings fit with those from the previous research on international teaching reviewed for this chapter in a number of key areas which will be explored below. Our analysis of the interview transcripts revealed themes: context, motivation, challenges, competencies, and preparation.

Context of the Cohorts

From the initial look at the first two transcripts we were struck by the differences between the two cohorts of participants. That is not to say there were not important similarities across the cohorts, nor internal differences within the cohorts. It is to say that there was a high degree of consistency in

participants' experiences and feelings within each cohort, and some very significant differences between the two cohorts that created a pronounced distinction between them. The particular context of each cohort played an important role in shaping the teachers' experiences and their feelings about international teaching. This will be obvious in our discussion of the other themes, but we will offer one example here by way of illustration: the participants' views of teacher professionalism in the two contexts.

Those who taught in the English context felt largely stripped of their professionalism, what many educational scholars have referred to as "deskilling." Virtually all of the participants spoke of how constrained they felt by the strict requirements of the National Curriculum and the heavy regulatory regime of national and school level inspection and observation of their work. Colin,[1] for example, found the curriculum in science superficial and not as in depth or up to date as the Canadian curriculum. As a teacher, however, he felt he had virtually no flexibility to make professional decisions about where to place emphasis. He had a year of teaching experience in Canada (in addition to his ITE practicum) and felt teachers there had much more professional autonomy vis-à-vis the curriculum. Brian expressed this lack of professional autonomy most strongly:

> It was, kind of a double-edged sword, they view, they want you to act extremely professionally, but gave you none of the responsibilities that go in tow. I often felt that I wasn't working a career, but I was working a job. . . .
>
> I was their cognitive machine. Rather than actually being a professional that was hired for my own unique approaches and my own unique ideas. It was "we have someone who needs to teach English, you can do that, please fill in that role.

This feeling of being de-professionalized was common across the England cohort.

The international school participants, however, spoke of the high degree of professionalism required in their context. They were expected to make decisions every day about balancing the

[1] All names are pseudonyms.

requirements of the International Baccalaureate (IB) curriculum with those of the New Brunswick curriculum (the school offered an NB graduation certificate), dealing with highly engaged parents from a number of national and cultural origins, designing high-level, inquiry-based instructional plans, and other aspects of their work. While teachers from the English cohort often felt they were forced into implementing very basic and highly structured lessons based on the expectations of others, the international school participants described the high degree of professional autonomy and responsibility in their setting. This responsibility was often shared with colleagues, but the definite sense was that it was the teachers' initiative that was important, not that of outside authorities. Beth, for example, put it this way:

> You really have to be willing to challenge your thinking, change your practice every year. I know in some places in the world, it is okay to have cookie cutter lessons that you use day in and day out from the year. It is fun to repeat a unit sometimes because you know it goes well. You are like oh, it was so great this year, I can't wait to do it again next year. That's not really the best practice in an international setting.

Discourse about high-level—or best—professional practice in a range of areas such as planning, pedagogy, assessment, and professional collaboration was ubiquitous across the international school participants.

Interestingly, these two conceptions of teacher professionalism mirror long standing discussions in educational literature. For years scholars have debated contrasting views of teachers ranging from seeing them as relatively low-skilled implementers of policies and practices developed by others, to highly skilled and relatively autonomous intellectual workers (Apple, 2013; Giroux, 1988; Goldstein, 2014). The types of limits on teacher autonomy experienced by the England cohort in our study are exactly those described by Sahlberg (2011) as part of GERM and critiqued in detail by a number of British scholars (Cunningham, 2012; Dale, 1989). These issues are dealt with regularly in so-called foundations courses in ITE programs, but none of the teachers in this study seemed aware of those larger

debates that might help them understand and contextualize their own experiences. Ironically, it is exactly those foundations—or more "theoretical"—courses that are often disparaged as being irrelevant by teacher education candidates and practicing teachers, including many of the England cohort in this study. We do wonder whether the potential of understanding historical and contemporary socio-cultural phenomena for successful transition to international teaching might be used to enhance candidates' appreciation for this area of study.

These two very different takes on the professionalism required by international teachers illustrates the profound importance of context in thinking about professional preparation. While there are common elements to teaching across these and other settings, international teaching is not generic. It is highly variable and a key consideration for ITE programs will be whether or not it is possible to provide context specific preparation when the range of possibilities is so great.

Motivation

There were both significant push and pull factors motivating these teachers to seek international work. Some of these were common across the two groups. Many, for example, felt the pull of interest in travel as an incentive for seeking work overseas, and some participants from each group were pushed to look internationally by a perceived lack of jobs in Canada. Colin, for example, figured that working internationally might give him a leg up in the competition for scarce Canadian jobs:

> I thought going to the UK would advance my career within Canada by giving me real hands on classroom experience. So I thought that Canadian boards would count it a lot more and increase my seniority uh based on my international experience right?

The differences between the cohorts, however, were more salient than these similarities. Overall, for the teachers in the England group, international teaching was not a life plan but rather something they fell into. We were struck by the general lack of enthusiasm for international work. There was a

sense from some of being forced into it, and even among those who valued it there were few spontaneous or really enthusiastic expressions of appreciation for experiencing the world. While many spoke about wanting to become a teacher from a young age, none spoke about a long time desire to work internationally. Becky said she would have preferred to remain in Canada and be closer to family "but there's no opportunities anymore." Anna had done an international internship during her ITE, which should be indicative of an interest in international work, but even she spoke of the push factor of lack of Canadian jobs without mentioning any particular draws toward international teaching.

The participants in the China cohort seemed more motivated by pull factors than push factors. Michelle is the best example of this, having caught the international teaching bug in a big way during a stint teaching English in Korea following her first degree. She returned to Canada to do a BEd with an explicit focus on becoming an international teacher. Others in this group also had experiences that drew them to moving in the direction of teaching outside of Canada: international internships, family members working internationally, personal travel, and the opportunity for professional growth. Katelyn was the only participant from either group who had a full-time, continuing contract in Canada, so for her the push factor of scarce jobs was irrelevant. She took a leave of absence to try teaching in Asia because she saw it as an opportunity both to see the world and to grow professionally. She said she has fallen in love with the work and is likely to give up her Canadian position to remain teaching overseas.

While we did not use any measure of locus of control in our study, the general attitudes of the two groups strike us as consistent with people who have an external (England group) and internal (China group) loci of control. Participants in the England group generally felt forced into international work by external factors and often spoke about the outside forces (school inspectors, exams, etc.) that made it impossible to work in ways consistent with their own philosophies of teaching. China cohort teachers gave a much greater sense of making choices for themselves and feeling like they could shape their

career choices in terms of where and how to work. Consistent with the research on locus of control reported in our review of literature, the China cohort teachers seemed much more successful at transitioning to international work than those in the England group. All were still working internationally, while several of the England group had returned to Canada, and even some of those who had not were far more negative about the work.

Sophia from the England cohort is perhaps the exception that proves the rule in this case, in that she seems to demonstrate considerable internal locus of control and has had perhaps the best experience of any in that group. Sophia got her first position through a recruitment agency, which proved very unsatisfying. She left the agency, started researching schools on her own, found one she thinks is "the best school in the South East," and has been very successful. She has been in England seven years and has significant responsibilities as a subject area coordinator.

In considering this theme we see several questions for ITE programs. Do ITE programs have a responsibility to provide an accurate sense of the job market in Canada and elsewhere? And, can ITE programs foster a heightened sense of internal locus of control among students, particularly with regard to professional issues such as finding a job or shaping working conditions?

Challenges

When asked about the challenges of teaching internationally participants from both groups talked about adjusting to new cultural contexts and the difficulties of living far from family, particularly at times of key life events. Again, however, there were considerable differences between the cohorts.

For the England group the challenges seemed to be of two general types: logistical and professional. In terms of logistics, many mentioned the difficulty of finding their way in things like

housing, banking, transportation, and general cultural expectations. Whether they came with an agency or on their own, very little help was available with these things.

Professional challenges separated into several categories: system-wide challenges, school challenges, and student challenges. Virtually all of these participants found elements of the national system challenging and constraining. Many mentioned the high levels of teacher accountability reflected in things like Ofsted inspections, frequent observations by superiors, and less than stellar reports about teaching. A number of participants mentioned the lack of teacher autonomy when it came to things like interpreting and implementing curricula, lesson planning, and assessment. Another challenging aspect was the high stakes testing culture and what it meant for curriculum, teaching, and teacher supervision. The range of schools within the country was also a challenge with many of these participants ending up, for at least part of their practice, in "difficult" schools in high migrant, low SES areas.

There were also related challenges particular to individual teachers or schools. One of these is the perception among several that they were deceived either by their agency or the school in terms of what they would be teaching. A number were assigned to teach in subject areas in which they had little or no background. Anna, a physical education specialist with a minor in science, felt particularly duped:

> I think like to mislead me and get me there they said "oh yeah you'll teach Phys Ed and Science" and then it's like oh you're going to teach all Science and then you'll have an after school soccer program with 70 kids.

There was a general feeling that the culture of teacher–student relationship is much different than in Canada. English students were perceived by this group to be significantly more difficult to work with than Canadian students. There were more and more severe disciplinary issues and sometimes complex, bureaucratic school procedures for dealing with these.

A number of participants made the point that almost no orientation or mentoring was available for any of these issues. Chloe pointed out that the diffusion of expatriate teachers across the system

means there are not many in any one school, so schools feel little or no responsibility to run orientation programs, as the vast majority of their teachers grew up in the English system and know it well.

The China participants responded to the issue of challenges very differently. For example, no one mentioned basic logistics—finding housing, setting up banking, learning transportation systems—as a big challenge, as the schools helped with many of those. As well, none of this group mentioned classroom management/behavioural issues as a significant challenge, while all of the England group did. One China participant did say it was a challenge to learn how to relate to students in the different cultural contexts of Canada, Oman (where she had taught for a year), and China, but this was not focused on behaviour as much as building teaching and learning relationships.

The competitive nature of international schools was perceived as a challenge for attracting and retaining both teachers and students. Several of the China participants have administrative responsibilities, and for them finding and keeping good teachers is a challenge, particularly because their school does not have the best of compensation packages. Finding students is also a challenge. There are a number of high quality international schools near the one used for this study, and parents look carefully for the best placements for their children. Schools have to demonstrate that they have both high quality programs and a strong teaching force in order to remain competitive.

This group articulated a number of challenges related to teaching and learning. Learning new approaches to curriculum and teaching, particularly focused on learning the IB system, is a big challenge for this group as was teaching in an English as and additional language (EAL) or English as a second language (ESL) environment. In regard to the latter, Jennifer spoke of the difficulty moving back and forth between classes with much different language abilities:

> As a high school teacher, especially, three of my four classes are very fluent in English. Then, I have this one grade six class that's very low level. To adapt yourself, within an hour of one class, to another, to sort of switch to that, I'm finding that professionally a challenge this year.

As we discussed above, Miller (2008) points out that in the English context "OTTs are as good as the support they receive" (p. 283). The participants in this study report almost no support in transitioning to a new cultural context, to a new and very different school system, or to the particular schools in which they work. All of them found these transitions very difficult and several left quite soon (in one case without completing a single school year). This exacerbates the issue of high teacher turnover, which is one that appears consistently in the literature of international teaching (Farber & Sutherland, 2006; Odland & Ruzicka, 2009). It is certainly beyond the scope of this chapter to suggest that the English system or English schools make changes to their recruitment and retention strategies, but we do wonder if there are implications for Canadian ITE programs. In many, perhaps most, cases these programs allow, even encourage, agencies to recruit OTTs for English schools. Do they then have a responsibility to their students to provide information about the particular challenges and issues related to taking up these kinds of positions?

Competencies

For the most part, both groups of teachers emphasized generic and what might be called "soft skill" competencies for international teachers: adaptability, open mindedness, willingness to change, ability to collaborate, and being able to deal positively with critical feedback. These strike us as valuable for all teachers, whether or not they work in an international setting, but some aspects might be heightened in those contexts. Canadian teachers do not, for example, tend to be subject to the levels of observation and critical feedback described as common in England.

These generic teacher qualities were supplemented by some more focused professional knowledge and skills, such as cross-cultural competence, knowledge of different approaches to assessment, ability to teach in a second language environment, and familiarity with different curricular

systems such as IB. We were struck by the fact that the England teachers were almost all overwhelmed by aspects of the education system there but none mentioned knowledge of different systems as an important competency for teachers.

The competencies discussed by our participants generally match ones identified in the literature as important. The literature, however, identifies a wider list and puts more emphasis on specific professional aptitudes such as "understanding of education in an international context" (Joslin 2002, p. 52) and "culturally responsive pedagogical skills" (Levy & Fox, 2015, p. 280-281). We have folded the implications drawn from this theme into the discussion of preparation below.

Preparation

In the interviews we asked participants to reflect both on how well their ITE programs prepared them for international teaching and on what they thought these programs could do to enhance preparation. As with other themes we noted a fairly stark contrast between the cohorts.

Teachers from the England group expressed a range of views about their ITE programs, from Colin who thought very highly of his program to Sophia who said, "I learned nothing." Overall, however, these participants expressed very little faith in ITE to teach much. Overwhelmingly, teaching for them is learned on the job, and therefore the most important part of teacher education programs is the practicum. As Brian said, "It's boots on the ground. That's what it is. It's boots on the ground. The only way to actually become a better teacher is to stand in front of a room of kids. . . ."

In general they felt the same way when asked about what programs might do to better prepare teachers for going overseas. Most were sceptical that much can be done at all, believing, again, that the important things can only be learned on the ground, in context. Chloe, one of those who was most positive about her ITE felt that it was impossible to prepare teachers for every possible context, so the

best thing to do is to provide a general preparation for teaching, and then it is the teachers' responsibility to find out about the specific context to which they were going—in her case, England.

One participant from this group, Sabrina, agreed with the general consensus that classroom experience is where teaching is really learned but did think that ITE programs should include attention to teaching in culturally and socially diverse environments and alternative curricula. The only other substantive suggestion for ITE programs from this group was that they include guest speakers who have taught in various contexts. This strikes us as completely consistent with the general attitude that teaching is best learned on the ground from those engaged in it and not in detached university classrooms.

In contrast to this, the China cohort was generally quite positive both about their own ITE programs and the potential of ITE to address important components of international teaching. Participants here specifically mentioned work on assessment and cooperative learning approaches as areas of their ITE programs that helped prepare them. Jennifer said it most strongly, stating, "I definitely give a lot of value from the things I learned in my course at my university." When pushed to be more specific, she went on:

> It's hard to say, over all, but what I remember the most clearest, I guess, it what I've actually used since teaching here. My assessment course, and then my theory and practice course, was taught by someone who worked, not internationally, but she worked in Northern Canada, so still in a very different environment. I guess I didn't feel disconnected from . . . Nothing that I did in university couldn't transfer, I guess, over here. . . .

The one participant from this group who spoke quite negatively about her ITE program criticized its complete lack of attention to areas related to international teaching. She had returned to school to do a BEd specifically to prepare for international teaching and found her program very parochial. In her critique, however, is an implied belief that attention to specific themes, topics, and skills in ITE would be beneficial for those wanting to teach internationally.

In terms of what ITE programs might do to better prepare candidates for international work, these participants mentioned specific things: identify different approaches to teaching, learning, and curricula, in particular those related to international curricula such as IB; cover material related to teaching in a second language environment; work on developing cross cultural competencies; and, improve technological competence. Beth was the most specific, emphasizing attention to specific teaching strategies such as inquiry based teaching, trans-disciplinary teaching, and concept-based learning. A number of participants mentioned the potential value of international practicuma as part of ITE.

In considering the findings in this section and the previous one on competencies, a number of questions occur to us for ITE programs. First, we note that the general disparagement of classroom or "theoretical" components of ITE expressed by the England cohort is consistent with much of the literature in the field. There is a considerable irony here, however. The participants from this cohort knew nothing about the English context before going there. A number complained that, despite several requests, their schools provided no information about the context generally or what they would be teaching in particular. As discussed above, the elements of the English system these teachers found most constraining and frustrating are well known in educational literature and are found in many places other than England. It strikes us that a comparative perspective on these manifestations of policy and practice might have been quite beneficial to these teachers, but we wonder how that can be made relevant and accessible in the face of their resistance to the university course components of ITE. This might be done in conjunction with the kind of guest speakers advocated by participants. University instructors could use the practical challenges highlighted by those with experience as a jumping off point for introducing the theoretical and policy context for the systemic features experienced on the ground.

One problem in selecting particular examples for presenting a comparative perspective is that there are so many from which to choose. The China participants, for example, strongly suggest ITE programs include attention to the curricula and teaching approaches advocated in IB programs. That raises challenges, as IB curricula are not widely taught in Canadian or other national school systems and are not the only curricula used in international schools. One way to deal with this might be to engage students in comparative work, looking at a number of curricular approaches, including those from the provinces in which they are completing their ITE, and comparing and contrasting them.

While we think that attention to things like IB approaches to teaching and learning or English policy and practice in the area of assessment would be valuable to all ITE candidates in Canada, some of the areas suggested for attention are more obviously relevant. Being prepared to work in culturally diverse classrooms, with migrant parents with different views about education, and with students whose first language is not English are increasingly important across Canada, even in more rural areas. It strikes us that explicit attention to preparing teachers for the world can also enhance preparation for teaching in the school down the street.

Conclusion

We begin the conclusion of this chapter with a reminder that our study was a preliminary one involving a small number of teachers from two cohorts selected quite idiosyncratically, based on our own contacts and experience. One of the limitations of comparing these two cohorts is that their teaching situations are different in fundamental ways. The English group were teaching regular curricula in national schools in a very particular socio-cultural and policy context. They were often quite isolated, sometimes being the only or one of only a few international teachers in their schools. The international school cohort, on the other hand, were teaching a recognized international curriculum in a school led by

Canadian administrators where the professional and policy context might have been more familiar. In future research it will be important to investigate how these, and other, international teaching contexts shape the perceived professional needs of teachers. Because of these and other limitations, including the fact we relied exclusively on self-reports from participants, we have used the results not to make sweeping conclusions about how ITE programs should change in the face of globalization and the increasing mobility of Canadian teachers, but, rather, to raise questions those programs might consider in moving forward. Those questions are summarized in Table 1. While we are cautious about generalizing our results, we do note that in several areas they are consistent with previous findings and therefore help to put a Canadian face of some of the international research.

Table 1
Key Questions/Considerations for ITE Programs

1. Do the 'foundations' of education have enhanced relevance in the preparation of teachers for international work?
2. Can ITE programs provide both generic and context specific elements in preparing teachers for a variety of possible international teaching opportunities?
3. Do ITE programs have a responsibility to provide an accurate sense of the job market in Canada and elsewhere?
4. Can ITE programs foster a heightened sense of internal locus of control among students, particularly with regard to professional issues?
5. Do Canadian ITE programs have any responsibility to provide information about particular issues and challenges related to teaching in specific international contexts? If so, how can this responsibility be enacted in a pragmatic fashion?
6. How can ITE programs introduce an international comparative perspective on policy and practice in education in ways that seem relevant to teacher candidates?
7. How can ITE programs prepare candidates to deal with both Canadian and international approaches to educational policy and practice? What is the appropriate balance between Canadian (or provincial) and international examples?

8. What elements of preparation for teaching internationally are particularly relevant to the Canadian or local context? How can attention to these contexts be creatively blended in ITE programs?

Our participants reported to us that international teaching is fraught with tensions. There is the tension of working in systems ideologically different from one's own orientation to the profession, or the tension of balancing competing content and pedagogical approaches between Canadian and international curricula, or the tension of negotiating the different expectations of colleagues or parents with different cultural backgrounds and worldviews. It strikes us that in working to address these areas Canadian ITE programs face a tension of their own: these programs are creatures of universities, which are for the most part provincially funded, with provincial competency guidelines that lead to provincial certification. Thus, there is a responsibility to serve the needs of the province in the basic mandate of our teacher education programs. So, while we argue ITE programs should be paying attention to the increasing trend of teacher mobility and preparing teachers for the world, we are very aware of their concomitant responsibility to prepare teachers for local contexts as well. Balancing those responsibilities will not be easy, but resolving challenges like these is precisely what makes professional work so interesting.

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Chapter 02: A Framework for Mapping Teacher Education Programs

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Abstract

This chapter describes the Practice, Theory, and Reflection (PTR) Model, a three-dimensional conceptual model created to serve as a framework to situate initial teacher education programs and practices. The model is intended to provide teacher educators and researchers with a means to consider the degree to which ITE (Initial Teacher Education) programs are guided by practice, theory, and reflection. The intent is not evaluative in nature but rather to provide a lens to consider how programs or courses are developed and implemented. The chapter provides a rationale for each continuum and considers how it may be used within the ITE context. For illustrative purposes, the PTR framework is employed to describe one ITE program's structure, courses, and practice. The inherent challenges and limitations of using such a model to position a program and courses are also addressed.

A Framework for Mapping Teacher Education Programs

Introduction

Teacher education is a contested space. The Holmes Group (1986), by identifying the limitations of conventional approaches used in universities, prompted major reform efforts in North America (Fullan, 1993; Darling-Hammond & Sykes, 1999). Similar challenges internationally have prompted innovation in many countries. Many years later, teacher education remains controversial, which has led to major initiatives to reform conventional approaches. It has also led others to propose alternative approaches to teacher preparation outside the university setting. Over the past 2 years, for a chapter in *International Handbook of Teacher Education* (Loughran & Hamilton, 2016), we have studied numerous programs across the globe to identify interesting and innovative approaches to teacher education. This has impressed on us the importance of sharing approaches with each other.

Teacher education is also a complex, and surprisingly unexplored, space. In writing our international handbook chapter, we were struck by the lack of detailed reporting on programs. While we know generally what teacher educators and teacher candidates do, there are few programs described in detail. This was particularly evident when we began our chapter on Ontario teacher education for the *Handbook of Canadian Teacher Education Research: Initial Teacher Education* (Falkenberg, 2015). We had expected to find documents (particularly on websites) that would enable us to draw meaningful comparisons between programs. Even though we explored volumes of information located on websites of Ontario faculties of education, we were challenged to decipher information and use it for comparative purposes across 13 institutions. This challenge was made more evident in a recent study we conducted on admissions policies in Ontario (Holden, Kitchen, Petrarca, & Lesage, 2016); if we had only relied on publicly available data without validation from insiders, our reporting would have been flawed.

If we are to reform teacher education, it is important that we gather information on programs across the country and around the world. Efforts have been made to gather such information in Canada, most notably by Crocker and Dibbon (2008), but information remains sparse; Falkenberg's (2015) handbook and CATE working conference (http://www.csse-scee.ca/associations/about/cate-acfe) chapters are also important sources of information. Deeper comparison across initial teacher education programs in Canada would raise public awareness about teacher education and benefit all institutions by gathering baseline information that would convey the range and complexity of programs in the country. Such baseline information—in the form of in-depth documentation of program visions, course offerings, hours, practica, and other elements—would enable faculties of education to understand how their programs are consistent with and distinct from other programs, while enabling applicants to make informed selections. It would enable researchers to draw comparisons of program characteristics and identify patterns provincially and nationally.

Information gathering about Canadian teacher education is important for two reasons. First, it is evident that the diversity and variety of programs needs to be documented. As the nature and depth of the diversity in programs and offerings is challenging to determine by perusing publically accessible documents, more needs to be done to ensure that such information is collected and then organized in a manner that allows for the identification of patterns of practice across programs. More in-depth documentation of course offerings, how key themes are handled, and practica structure would serve the academic field of education well. Hirschkorn, Sears, and Lemisko (2016) proposed a central repository of information located on a central and neutral website with similar fields and nomenclature simply for information (and non-evaluative) purposes, which could provide clarity for those seeking to understand and draw lessons from teacher education programs.

We are not suggesting that faculties of education homogenize their programs or monitor programs for quality control purposes. On the contrary, we believe the diversity of programs should be celebrated through the sharing of information. Descriptive data should be collected on all of them. The communication of this information, by highlighting structures and innovations, could also help in developing better teacher education programs across the country.

In order to make sense of the information we were collecting internationally, we developed a three-dimensional model for positioning approaches to teacher education. This model may be helpful in addressing the question: How are teacher education programs held accountable for the capacities their teacher graduates possess? Although the model does not explicitly address this question, we suggest it may be a helpful tool for program and course planning purposes. By identifying the desired capacities teacher graduates would possess, the model might assist in aligning the desired capacities with program content and structure.

We were guided by three key questions asked by Feiman-Nemser (2001), which continue to challenge teacher educators 15 years later:

(a) What are the central tasks of teacher learning in the early stages of learning to teach?

(b) How well do conventional arrangements for teacher preparation, new teacher induction, and early professional development address these central tasks . . . ?

(c) What are some promising programs and practices that promote reform-minded teaching . . . ? (p. 1014)

It would seem reasonable to suggest that one of the most important tasks in responding to questions and issues about teacher education is to ensure that elements of excellence are understood and incorporated

across various pathways (Zeichner & Conklin, 2008). Our model is a means towards answering Feiman-Nemser's third question by identifying a range of teacher education programs and practices with a view to understanding their qualities rather than attempting to assess their relative merits.

While there may be merit to aspiring to high degrees of each component, Feiman-Nemser (2001) reminds us that many programs have weak relationships between courses and field experiences, offer fragmented pedagogy and limited subject matter knowledge, lack teacher educators who practice what they preach, fail to link theory to practice, and do not "cultivate habits of analysis and reflection through focused observation, child analysis, analysis of cases, microteaching, and other laboratory experiences" (p. 1020). As Kosnik and Beck (2011) eloquently state, teacher educators "often try to do too much" by covering "the waterfront in almost every subject" leaving teacher candidates "inundated with so much information that they have a difficult time organizing it both conceptually and physically" (p. 2).

A Three-Dimensional Model of Teacher Education

We developed a three-dimensional model consisting of theory-, practice-, and reflection-oriented continua as a framework to situate initial teacher education (ITE) programs and practices internationally (see Figure 1). In Kitchen and Petrarca (2016), this model served us well as a means of identifying and distinguishing among exemplars of each dimension. The three continua in the model reflect the low to high engagement of ITE programs with theory, practice, and reflection. In the context of this model, *practice* refers largely to the practical application of knowledge and skills within the school settings. The term *theory* is used broadly to refer the content of teacher education courses, including subject matter, pedagogy, human development, foundations of education and the social context of education. *Reflection* refers to the complex, active, and intentional meaning-making activities, rather than "everything that, as we say, is 'in our heads' or that 'goes through our minds'" (Dewey, 1933, p. 2).

In this chapter, we apply the model to a key cluster of courses at one faculty of education.

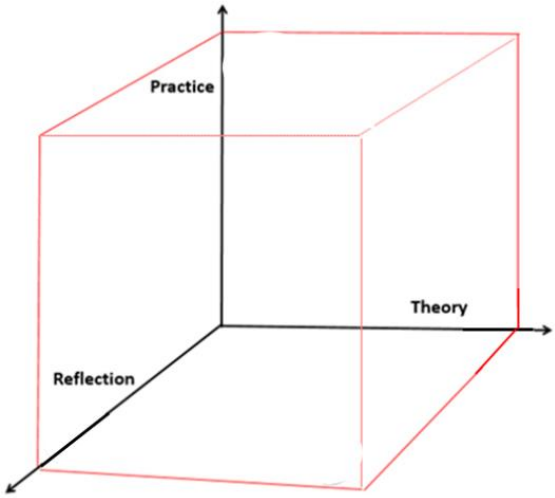

Figure 1. The PTR three-dimensional model consisting of theory-, practice-, and reflection-oriented continua as a framework to situate initial teacher education programs. (Kitchen & Petrarca, 2016).

The Theory Dimension of Teacher Education

The concept of theory dates back to ancient Greece where Aristotle classified human activity into three categories of *theoria* (contemplation about truths), *poiesis* (making-action), or *praxis* (doing-action) (Carr & Kemmis, 1986). Kitchen and Petrarca (2016) write:

> In education, theory is developed both through contemplation and through episteme, propositional knowledge generalized from past practice (Kessels & Korthagen, 2001). The theory continuum within the framework in Figure 1 refers broadly to include the theory and research employed in teacher education classes and programs. For example, theory might denote theory and research related to educational disciplines such as philosophy and history, subject-specific course content, human learning and development, pedagogical principles, and social and cultural contexts (Darling-Hammond

> & Baratz-Snowden, 2007), as well as pedagogical principles. Redman and Rodrigues (2014) described the "theoretical model" as focused on the science of learning how to teach. This is consistent with Zeichner's (1983) behaviourist and Feiman-Nemser's (1990) academic and technological teacher education paradigms. Understanding and applying these propositions, it is hoped, might lead to effective classroom practice. (p. 154)

Theoretical orientations can range from simple prescribed knowledge bases for classroom practice to complex structures that inculcate in teachers attitudes and practices that are firmly grounded in educational theory and research (Feiman-Nemser & Buchmann, 1989). Theoretical knowledge is undoubtedly a critical component for teacher candidate learning. From programs that are well grounded in theory, we can learn how to most effectively infuse a substantive body of core knowledge about teaching and learning into learning experiences. Theory-oriented teacher education may relate to both foundational (e.g., human development and philosophy) and methods (e.g., school curriculum areas). Theoretical approaches often emphasize propositions about curriculum, learning, and pedagogy with little focus on enactment context (Kosnik & Beck, 2009).

The theory–practice divide has been "a longstanding and contentious issue in teacher education" (Kitchen & Petrarca, 2016). In our review of programs internationally, we noticed a shift away from theory-dominated models in which teachers are "high-level technicians carrying out dictates and objectives decided by experts far removed from the everyday realities of classroom life" (Giroux, 2002, p. 46). In its place are models in which teachers are regarded as knowledge-holders possessing an understanding of learning and development, research on pedagogy and content, and educational foundations. As Mayer (2014) observed:

> Even though disciplines like psychology, philosophy, sociology and history were introduced to support and enable this critical reflection, the central focus of many teacher education programmes was still teaching methods and the practicum, resulting in the theory–practice binary in teacher education that exists to this day, which positions in level of importance, the practical skills developed during the practicum against the theory that is developed in the campus-based components of the programme. (p. 464)

The exemplars we highlighted incorporated theory in a manner that reflected the complexities of what teachers are expected to know and do (Darling-Hammond & Baratz-Snowden, 2007). They also grounded curriculum knowledge in subject-specific content, core practices across curriculum and social justice inquiry through strategies that enable teacher candidates to examine their assumptions about teaching and learning and adapt expertise to learning contexts (Darling-Hammond, 2006).

Practice Dimension of Teacher Education

A practice-oriented conception of teaching relates back to Aristotle's classifications of poiesis (making-action) and praxis (doing-action). According to Carr and Kemmis (1986), practice involves "what Aristotle called *poietike*, which roughly translates as 'making action' and which is evident in craft or skill knowledge" (p. 32). Another useful term is phronesis (practical wisdom derived from understanding specific situations), which Kessels and Korthagen (2001) contrasted with episteme. The practice-oriented continuum of the model in Figure 1 refers to the practical elements related to teacher education programs, particularly the practicum in "a setting designed for the task of learning a practice" (Schön, 1987, p. 37). This is consistent with Zeichner's (1986) traditional-craft and Feiman-Nemser's (1990) practical teacher education paradigms. According to Kitchen and Petrarca (2016):

> Real-world practice, it is hoped, will lead to the development of craft knowledge that can be applied later as a classroom teacher. . . . While a practicum reflects a view of professional knowledge as grounded in the realities of classrooms (Schön, 1987), there are many perspectives on the nature of that knowledge and how it plays out in a practice teaching setting. Theoretical and behavioural oriented teacher educators may envision the practicum as a laboratory in which one can apply facts, rules, theory, and procedures. Others may view practicum settings as dynamic and presume that facts, rules, and procedures cannot be applied without the development of phronesis. (p. 143)

Practicum goals, formats, processes, and approaches may vary considerably, as evidenced in the wide range of models internationally. Darling-Hammond and Baratz-Snowden (2007) state that effective practica include: 1) clear and explicit goals regarding teacher candidates' practice; 2) associate teachers who model sound practice; 3) regular teaching opportunities for ongoing feedback; 4) regular opportunities to apply theory to practice; 5) a gradual increase of teacher candidate responsibility in all areas of classroom practice; and, 6) regular and structured opportunities for reflection on classroom practice. As Feiman-Nemser (2001) stated:

> Observation, apprenticeship, guided practice, knowledge application, and inquiry all have a place in field-based learning. Teacher candidates need opportunities to test the theories, use the knowledge, see and try out the practices advocated by the academy. They also need opportunities to investigate problems and analyze situations that arise in the field. (p. 1024)

Reflective Dimension of Teacher Education

Reflection serves as the differentiating factor between Aristotle's *poiesis* (making-action) and *praxis* (doing-action) by converting action into an "informed action" (Carr & Kemmis, 1986). Dewey (1933) described reflective thinking as "[a]ctive, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends" (p.6). This is evident in descriptions of practica that optimize learning. For example, Darling-Hammond, Hammerness, Grossman, Rust, and Shulman (2005) wrote:

> Typically, the ideal has been a placement in which student teachers are supported by purposeful coaching from an expert cooperating teacher in the same teaching field who offers modeling, co-planning, frequent feedback, repeated opportunities to practice, and reflection upon practice while the student teacher gradually takes on more responsibility. (p. 409)

In studying international exemplars of reflection-orientated teacher education, we observed that they go beyond merely fostering opportunities to reflect by making explicit the *need for* and *value of* reflection to prospective teachers (Loughran, 2002). Kitchen and Petrarca (2016) note, "The emergence of reflection-oriented teacher education stems from both dissatisfaction with conventional approaches and Schön's (1987) work on reflective practitioners" (p. 161). "Intentionality, activity, and reflection are essential to meaningful learning, especially in complex and new domains," according to Jonassen, Hernandex-Serrano, and Choi, (2000, p. 111). Common to most programs committed to reflection, or reflective practice, is the existence of a problem or "a puzzling, curious, or perplexing situation" (Loughran, 2002, p. 33).

This is consistent with Zeichner's (1983) personalistic and Feiman-Nemser's (1990) personal teacher education paradigms. Reflection in teacher education programs is evident in activities that promote reframing dilemmas of practice, examining one's assumptions, attending to the culture of a school, and engaging in curriculum development (Zeichner & Liston, 2013).

Application of the Model: University of Ontario Institute of Technology (UOIT)

Ideally, a faculty of education might use the model to identify the degree to which programs are guided by theory, practice, and reflection. With the recent legislated provincial changes to Ontario's teacher education programs, for the purposes of this chapter, we initially wanted to illustrate our PTR model by demonstrating how one faculty of education might use the model as a lens to view the "enhanced" program. We selected the bachelor of education primary/junior program as an example, since at the time of writing this chapter, one of the authors held the BEd program director position and was extremely familiar with the program structure, courses, and development.

Even though one of the authors served as the BEd director, when using the model to map out the UOIT program, we found the exercise extremely challenging to position the entire program along all dimensions. For example, ideally and theoretically, when developing a new program, core faculty would focus on building a program grounded in the teacher education literature, along with designing courses developed or redeveloped with deliberate attention to including more relevant scholarly work to underpin the assignments and instructional practices. Each course would also include a reflective component embedded within the instructional experience or an assignment. The extent to which "reflection" or "theory" or "practice" is actually implemented within individual courses varies, however, and attempting to identify the degree to which a particular course sits on the reflection or theory or

practice continuum would be presumptuous without consulting each instructor. In addition, the exercise of identifying the degree to which a course or program sits on a continuum is not meant to be evaluative in nature but, rather, to demonstrate how the PTR Model might be useful when considering how the various components work together within a teacher education program.

In mapping out the UOIT program, it was extremely challenging to even attempt to position the entire program along one, let alone three dimensions. Ideally and theoretically, when we created the new program, the core faculty focused not only on building a program that was grounded in the teacher education literature but the new and revised courses were developed or redeveloped with deliberate attention to including more relevant scholarly work to underpin the assignments and other more "practical" aspects of the course.

For the purpose of this chapter, we illustrate the PTR model by identifying the degree to which the UOIT Foundations I, II, and III courses are guided by theory, practice, and reflection. These courses serve to ground the teacher candidates within a variety of subject areas and topics including professionalism, pedagogy, learning, assessment, curriculum, and a host of other topics that span across a variety of other courses within the program. They serve as the backbone of the program upon which other courses build to varying degrees. They are foundational to the program, but are not courses in "foundations of educations" (e.g., educational philosophy, sociology, or history). We now position the Foundations courses along the model's three dimensions, and contrast with its predecessor, Core Curriculum Methods. Again, the intent of this exercise is to position the course based on descriptive information, not to assess them.

Foundations and the Theory Dimension

As described earlier, within the context of the model, theory refers broadly to research and theory within education courses and the program. For example, this could refer to peer-reviewed scholarly papers specific to a curriculum methods course or the host of learning and development theories explored in the Learning and Development course in the UOIT Faculty of Education's PJ program (which shall be referred to herein simply as UOIT's program). Teacher educators who are committed to research, one might argue that many—if not all—courses could or should be situated along the theory dimension. However, the extent to which theory or research is considered within individual courses would vary considerably.

Foundations consists of three courses conceptualized in response to the documented disconnect between university-based instruction practicum experiences (Beck & Kosnik, 2000; Crocker & Dibbon, 2008; Darling-Hammond et al. 2005; Levine, 2006). Foundations instructors both serve to deliver the curriculum and act as liaisons with practicum sites.

Prior to the enhanced program, the Core Curriculum Methods course closely connected lesson planning, instructional strategies, and assessment to the practicum. Primary/Junior subject-specific methods courses (18 hours per subject) then explored these topics in greater depth.

As a lead PJ Core Curriculum Methods instructors, the author observed that both theoretical and research-oriented materials elements of the course were often downplayed due to the time devoted to the "how-tos" of lesson planning and assessment. Exploration of the theory and research existed mainly on a surface level; the rationale for employing particular instructional and assessment practices was often lost. Figure 2 demonstrates where Core Curriculum Methods might sit along the theory continuum due to the low number of hours, and the attempts at integrated theory into the key lesson plan assignment. In contrast, Foundations is further along the theory continuum of the PTR model. This reflects an increase

in theory due to several key program changes and deliberate choices made by the course instructors and BEd team. Key structural changes included an increase in course credit hours and in number of courses devoted to Foundations. Each of the three Foundations courses is now a 36-hour course, compared to the one 18-hour Core Curriculum Methods course. Foundations courses now integrate classroom management models and connect the approaches to the broader concepts within the course, rather than isolating classroom management as its own "practical course." Course instructors made deliberate efforts to include theoretical and research-oriented readings, followed by making explicit to the teacher candidates the rationale for the course activities. The course also required teacher candidates to draw explicit evidence from scholarly academic papers and work to support instructional and more "practical" activities. Overall, the instructors made conscious decisions to base in-class instructional activities, assignments, and assessments on successful practices drawn from the teacher education literature.

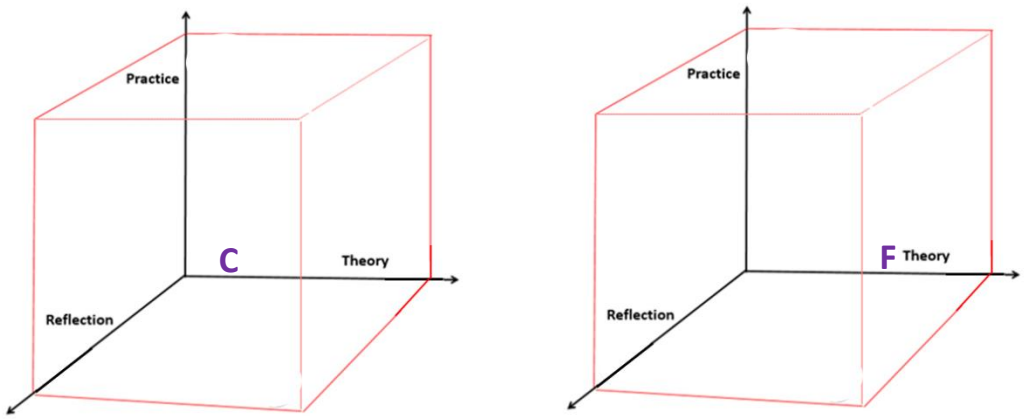

Figure 2. Positioning of Foundations courses (right model) and the predecessor Core Curriculum course (left model) along the T (theory-oriented) continuum.

Foundations and the Practice Dimension

We now consider Foundations within the practice dimension of the model. Once again, for the purpose of this chapter, our interest is to illustrate how the PTR model might identify the degree to which the UOIT Foundations courses are guided by practice, not in assessing the practical models used.

By its connection to practica, Foundations might be considered practice-based courses. When conceptualizing the enhanced program, the faculty turned to the teacher education literature for evidence of *effective* teacher education programs. A common theme included the *supervision* of teacher candidates by course instructors (Darling-Hammond, 2006). The previous 2-semester program relied on retired teachers and school administrators to serve as faculty advisors to our teacher candidates in the field. Their role included visiting the schools multiple times and completing a final field experience summative report. This model allowed for the teacher candidates to have multiple formal summative assessments (i.e., from the associate teacher and from the faculty advisor). However, with this type of model, there were challenges in bridging the course work and practice within the schools. With the drastic funding cuts, the Faculty of Education moved to a model whereby the Foundations instructors would also serve as liaisons between the university and the school setting. Foundations instructors now visit the teacher candidates (generally clustered together at schools) as a support person and although they no longer complete formal assessments, they do provide general feedback based on their shorter observations and interactions during their less formal visits. Unlike the previous model, where the faculty advisors were typically not course instructors within the program, Foundations instructors are connected to the schools and are able to respond to associate teachers' questions about specific course connections regarding lesson planning, assessment, and general pedagogical topics from a course/program perspective.

Due to limited hours and a focus on the mechanics of lesson planning and assessment, Core Curriculum Methods was often described by teacher candidates as a *practical* course. Similar to the former Core Curriculum Methods course, the first of the three Foundations course still maintains a focus on lesson planning and assessment, the additional hours in the course allow for additional opportunities for teacher candidates to explore the theory that underlies the course content.

As Feiman-Nemser (2001) notes, teacher candidates require opportunities to observe and "try out practices advocated by the academy" (p.1024). The UOIT program now includes mandatory Foundation Fridays when teacher candidates are either in their practicum classrooms as helpful guests and observers or on campus for professional development sessions on current Ontario curricular initiatives, or presentations from teacher federations or the Ontario College of Teachers. Figure 3 contrasts Core Curriculum Methods and Foundations along the practice continuum of the PTR model.

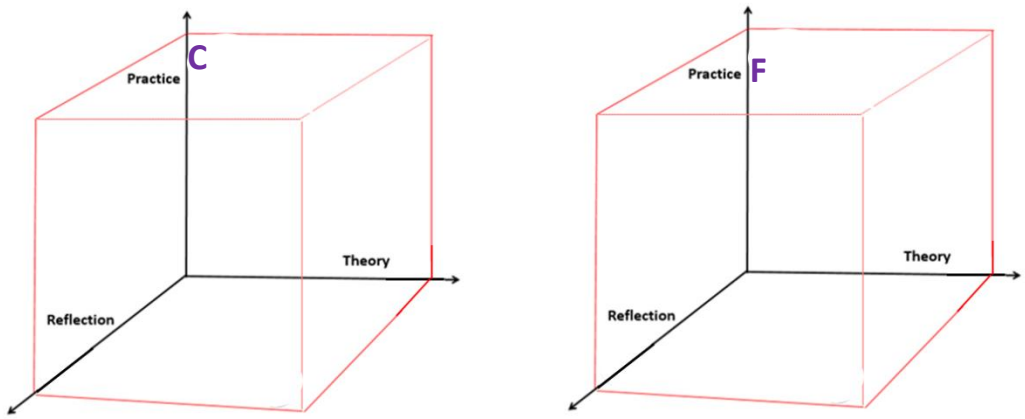

Figure 3. Positioning of Foundations courses (right model) and the predecessor Core Curriculum course (left model) along the P (practice-oriented) continuum.

Foundations and the Reflection Dimension

Reflective practice is included in most teacher education programs. The international exemplars of reflection-orientated teacher education, noted earlier in this chapter, show that reflection can range from providing opportunities to reflect to making explicit attention to the *need for* and *value of* reflection (Loughran, 2002) as critical to effective professional practice.

As Core Curriculum Methods was only 18 hours, reflection was often addressed in a superficial manner. Emphasis was placed on *how to* reflect on course work and practicum experiences, rather than on in-depth opportunities to critically consider the need for and value of reflection. In contrast, a key component of Foundations is a digital learning portfolio based on a deliberate attempt to guide teacher candidate reflection. Drawing from Loughran (2002) once again, the digital learning portfolio served as way in to reflection:

> This issue is perhaps at the heart of the nature and value of reflection, as clearly the "way in" to reflection—the need to reflect—the context, the nature of the problem, and the anticipated value of such reflection all impact on what is reflected on and for what purpose. Simply being encouraged to reflect is likely to be as meaningful as a lecture on cooperative group work. (Loughran, 2002, p. 33)

The central focus and purpose of this digital portfolio is teacher candidates' processes of learning rather than merely showcasing artifacts and achievements. After a semester's guiding questions, personal statements, and other self-assessments, teacher candidates analyze their portfolios specific to their learning and growth as teachers/learners. Although the extent to which the digital learning portfolio will enhance teacher candidate reflective practice and growth is unknown at this time, the new program is intentional in its commitment to more reflection. The PTR model, by highlighting the reflective

dimension for the author, prompted an explicit strategy for integrating more meaningful reflective practice within Foundations.

Figure 4 by placing the Core Curriculum Methods and Foundations courses within the reflection dimension of the PTR Model, illustrates how the model might be used.

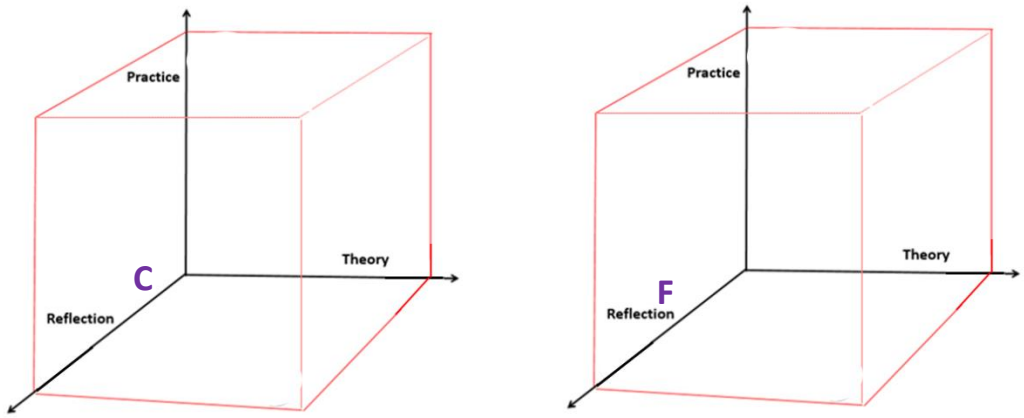

Figure 4. Positioning of Foundations courses (right model) and the predecessor Core Curriculum course (left model) along the R (reflection-oriented) continuum.

Pulling It All Together

As previously described, our interest lies in identifying the degree to which programs are guided by theory, practice, and reflection, rather than assessing the theoretical, practical, and reflection-oriented models used by ITE programs. To illustrate how the conceptual model might be used, we used the PTR model as a lens to consider the UOIT Foundations series of courses, while contrasting the courses to the former PJ Core Curriculum Methods course within the now defunct two-semester BEd program.

An immediate challenge that emerged when attempting to position the courses on the three continua was the actual placing of the each course on the continuum. The following immediate questions or dilemmas arose: *How far along the continuum would the course be placed? How are the positions quantified? Upon what are we basing the positioning?*

Our intention in presenting this model is three-fold. Our first intention is to offer a lens or guide to faculty as they conceptualize and reform their programs. The model reminds them of the multiple dimensions at play and encourages them to consider how to increase engagement in the dimensions they value. Reading about other institutions, UOIT in this case, grappling with these challenges is helpful in addressing reform in one's own course or program. Figure 5 displays where the predecessor course, Core Curriculum Methods and the new Foundations courses might sit within the three-dimensional representation of the theory, practice, and reflection continua. In retrospect, working with the PTR model would have served as useful framework to guide discussions with faculty when developing the new program. For example, the model, alongside the faculty's vision, could have driven discussions simply by inviting faculty to consider where, how, and why previous courses required development within the three dimensions.

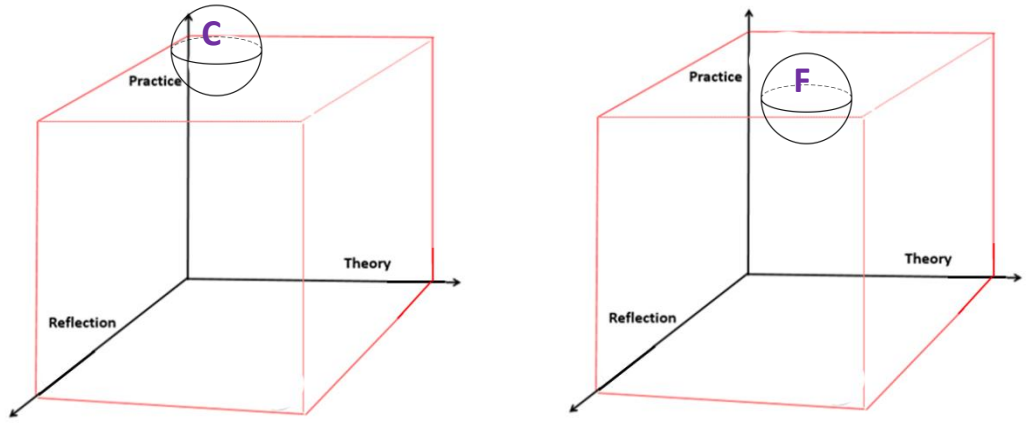

Figure 5. Positioning of Foundations courses (right model) and the predecessor Core Curriculum course along the theory-, practice-, and reflection-oriented) continua of the PTR model.

Our second intention is to encourage integrated approaches to teacher education reform. As time is limited, faculties need to make choices or find ways to integrate so multiple dimensions are addressed

simultaneously. Otherwise no dimension is explored in depth or, if so, only at the expense of other dimensions. Our third intention is to encourage the sharing of information about teacher education programs by providing a common framework for describing program dimensions. The model might provide opportunities for teacher educators within and amongst faculties of education to consider their individual courses or programs.

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Chapter 03: Building Canadian Preservice Teachers' Capacity in Classroom Assessment

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Abstract

Teachers play a pivotal role in developing students' 21st-century competencies through the design and implementation of a wide range of innovative assessment strategies. However, many teachers report that they have inadequate assessment preparation at the pre-service teacher education level. Hence, it is of paramount importance for teacher education programs to offer pre-service teachers high-quality assessment curriculum. In this chapter, we analyze the global trends in building pre-service teachers' capacity in using classroom assessment (i.e., assessment literacy) to support student learning. A review of the national trends in providing quality assessment preparation in pre-service teacher education programs is presented. This is followed by a specific example of teaching assessment in a Western Canadian university and an illustration of assessment curriculum redesign using problem-based learning, a signature pedagogy to develop pre-service teachers' capacity in classroom assessment, especially in the areas of authentic assessment and assessment for learning. We also describe the impact of the redesigned assessment course on pre-service teachers' capacity in classroom assessment. The chapter ends with discussion of the implications for practice.

Building Canadian Preservice Teachers' Capacity in Classroom Assessment

Introduction

As we enter the second decade of the 21st century, building preservice teachers' capacity in using classroom assessment (i.e., assessment literacy) to improve student learning and achievement has become increasingly important in education systems around the globe. Due to the constraints of natural resources, unpredictable crises, and governmental budget deficits, building human capital through quality schooling is a key lever for increasing the economic competitiveness, quality of life, adaptability, and lifelong learning of individual citizens. At the national level, a skillful, resilient, and productive workforce will contribute to social stability, nation building, and competitiveness in the global markets. In line with the skills and competencies required in the 21st-century workplace, many of the developed countries, Canada included, have shifted the focus of their curriculum frameworks from rote memorization of facts and routine procedural skills towards creativity and critical thinking, decision making, complex problem-solving, communication, digital and technological literacy, collaboration, concerned and responsible citizenship, and lifelong learning. These competencies or intellectual demands are widely recognized as the essential 21st-century learning outcomes that students in today's classroom need to attain if they desire to become productive workers, responsible citizens, and lifelong learners in a rapidly changing knowledge-based economy.

Over the past 2 decades, the importance of developing 21st-century competencies or contemporary capacities in K–12 students has led to a clarion call for re-aligning curriculum, assessment, and instruction to the desired student outcomes. Many have agreed that traditional "chalk and talk" pedagogy and standardized paper-and-pencil tests are only suitable for developing and capturing students' mastery of factual knowledge and routine procedures (Koh & Luke, 2009;

Pellegrino, 2014; Shepard, 2000). In the framework for 21st-century learning developed by the Partnership for 21st Century Skills (2009), four support systems are deemed important to help achieve the vision of 21st-century student outcomes: (1) standards and assessment, (2) curriculum and instruction, (3) professional development, and (4) learning environments (Bellanca & Brandt, 2010). Among these, the provision of high-quality professional development programs in classroom assessment to both pre-service and in-service teachers is necessary. Hence, there has been an increasing focus on revamping courses offered in teacher education programs around the globe. One of the global initiatives is an addition of assessment courses at the pre-service teacher education level. Such an initiative is commendable, but little is known about how to design and implement high-quality assessment courses, or about their impact on building pre-service teachers' capacity in classroom assessment or teachers' assessment literacy. Also, there still remains a limited body of literature providing concrete examples of assessment curriculum design and implementation using innovative pedagogical approaches.

In this chapter, we present the global trends in building pre-service teachers' capacity in classroom assessment by analyzing the descriptions and learning outcomes of assessment courses from a selected sample of pre-service teacher education programs. The programs were drawn from high-achieving education systems that have invested resources in building teacher capacity through teacher education programs. High-achieving education systems are defined by their students' stellar performance on the Program for International Student Assessment. The chapter will then be followed by a review of the trends in developing Canadian pre-service teachers' capacity in classroom assessment, an example of teaching assessment in a Western Canadian university, a new initiative in assessment curriculum redesign, and its impact on pre-service teachers' assessment capacity or assessment literacy. Implications for practice are discussed at the end of the chapter to shed light on future directions for the design and implementation of assessment courses in pre-service teacher education.

Global Trends in Building Pre-service Teachers' Capacity in Classroom Assessment

Over the past two decades, educational reform movements around the globe have called for a major overhaul in the curriculum frameworks and assessment systems of many nations. The curriculum frameworks have shifted from rote memorization and reproduction of discrete facts and procedures toward a greater focus on deep understanding of subject matter, creation of new knowledge, and mastery of 21st-century competencies. Many of the 21st-century competencies—such as critical thinking, creativity and innovation, complex problem-solving, communication, collaboration, self-directed learning, and lifelong learning—have become the desired student outcomes (Partnership for 21st Century Skills, 2009). These competencies are deemed to prepare students for success in their personal lives, their schools and communities, and their future workplaces. In addition, students' mastery of information, media, and technological skills has become increasingly important in a global, knowledge-based, and technologically connected world.

In line with the importance of helping all students to have an equal opportunity to achieve higher-order curricular outcomes or 21st-century competencies, there is a call for schools to design a balanced assessment system using the strengths of both formative and summative assessments to address learning, instructional, and accountability needs of different stakeholders (Stiggins, 2006). Bennett (2011) has aptly explained the importance of designing assessment systems that incorporate the use of summative and formative assessments for different purposes. He states, "[W]e should design assessment systems in which summative tests, besides fulfilling their primary purposes, routinely advance learning, and formative assessments routinely add to the teacher's overall informal judgment *of* student achievement" (Bennett, 2011, p. 7). We argue that the purpose of formative assessments is to support student learning rather than to evaluate student achievement.

As traditional paper-and-pen standardized tests are not well suited to assess students' attainment of complex, sophisticated curricular or learning outcomes, teachers are urged to adopt and implement alternative forms of assessment such as authentic assessment, performance assessment, and assessment for learning. Authentic and performance assessments provide learners with the opportunity to demonstrate their ability and dispositions by applying knowledge and skills in solving complex, real-world problems. This is because authentic assessment tasks replicate the real-world challenges and standards of performance that typically face experts or professionals in the field (Wiggins, 1989). As such, students' performance on the authentic assessment tasks will reflect their true ability and dispositions. Assessment for learning refers to the use of assessment to help and promote student learning (Stiggins, 2002). With the advancement of mobile technology and online social networks (e.g., Twitter, Facebook), teachers in contemporary classrooms around the globe are also expected to be competent in infusing technology into their assessment and pedagogical innovations (Dede, 2007; Friesen & Jacobsen, 2011; Jacobsen & Lock, 2004; Lock, 2007).

A substantial body of literature has pointed out that assessments can drive teachers' instructional or pedagogical practices in ways that mimic both the content and the format of assessments (e.g., Koh & Luke, 2009; Lingard et al., 2001). Hence, an effective way of promoting students' learning of the 21st-century competencies is to design and implement authentic assessments that enable the coverage of those competencies in the day-to-day classroom. This indicates that teachers need to adopt instructional or pedagogical approaches that are well aligned with authentic assessments (Koh, 2014a). For example, a traditional whole-class lecture approach is not appropriate if a teacher aims to engage students in working collaboratively with their peers to perform authentic tasks that comprise complex, real-world problems. Rather, learner-centered pedagogical approaches such as problem-based learning (PBL) should be used to enable students to achieve their learning goals.

There is a consensus in the general education literature that teachers' lack of assessment literacy can hinder them from selecting, designing, and implementing innovative assessment and pedagogical approaches for the purpose of improving student learning (Stiggins, 2002). Many teachers attribute their low levels of assessment literacy to inadequate assessment preparation at the pre-service teacher education level (DeLuca & Klinger, 2010; Mertler, 2003). A majority of pre-service teachers reported that they gained their assessment knowledge and skills through working with their partner teachers during practicum. DeLuca and Klinger (2010) contend that it is risky for pre-service teachers to adopt the idiosyncratic assessment practices of their partner teachers. This is especially so when pre-service teachers do not have the relevant assessment content knowledge and professional competence to differentiate between sound and unsound assessment practices.

In view of the importance of developing pre-service teachers' assessment literacy, assessment curriculum has been introduced to both pre-service and in-service teacher education programs over the past decade. The term *assessment literacy* has been widely used by researchers, teacher educators, and policy-makers to characterize a teacher's ability to "know the difference between sound and unsound assessments" (Stiggins, 1995, p. 238). Sound assessments refer to meeting standards of appropriate purposes, targets, methods, and achievements with control for bias. In the context of teacher professional development, Koh (2011) has extended the definition of assessment literacy to teachers' capacities to design and implement assessment tasks to support student learning in the day-to-day classroom.

To help our analysis of the global trends in building pre-service teachers' capacity in classroom assessment or in developing pre-service teachers' assessment literacy, we searched for assessment courses in pre-service teacher education programs in a selected sample of higher education institutions around the globe. However, our search was limited to the institutions' websites, which provided us with

information about pre-service or initial teacher education programs as of March 2016. Table 1 presents a summary of the assessment courses and our analysis of the course objectives and learning outcomes.

Table 1
A Sample of Assessment Courses in Pre-service Teacher Education Programs

Countries/ Institutions	Course/Year	Objectives	Learning Outcomes
Canada:			
University of Calgary	Assessment Year 2 Term 4	To develop a deep understanding of the definitions, purposes, functions, and principles of different forms of assessment	• Through the investigation of assessment problems, pre-service teachers work through key concepts of measurement, testing, balanced assessment, assessment *of* learning, assessment *for* learning, assessment *as* learning, authentic assessment, review and critique of performance assessment and rubrics, and engage in intellectual discourse on sound grading and reporting practices.
University of British Columbia	Assessment and Learning in the Classroom Year 1 Term 2	To integrate sound classroom assessment practices into curriculum planning and teaching to support student learning	• Pre-service teachers engage in the analysis of the influences of personal factors (e.g., learning experiences, knowledge, values) and diverse learners on one's assessment practices, understanding of the purposes, principles, and practices of high-quality classroom assessment, and application of assessment principles to develop and use high-quality assessment tools.
University of Alberta	Educational Assessment Year 4	To introduce the complexity of classroom assessment to support and measure student learning	• Pre-service teachers engage in understanding the purposes of assessment, learning how to match assessment tools to learning objectives, and to analyze the results of both classroom and large-scale assessments to support student learning.
University of Saskatchewan	Literacy Across the Elementary/	To focus on the relationship between	• Pre-service teachers engage in planning lessons and units for

	Secondary Curriculum Assessment and Planning in a Relational Context Pedagogies of Place Context Based Learning Secondary Year 3	curriculum and assessment across subject areas To consider pedagogical, planning, and assessment choices in relation to geographical, socio cultural contexts, and learners' diversity	literacy across curriculum. Assessment is embedded within the curriculum. • Pre-service teachers engage in examining holistic, experiential, and inquiry-based pedagogical approaches.
Queen's University	Foundations of Assessment Understanding Classroom Assessment and Evaluation Assessment and Evaluation Practices in the Classroom	To introduce the foundations of classroom assessment and evaluation To examine the complexities of enacting assessment policies and theories within contemporary teaching contexts; to explore classroom assessment philosophies and approaches in relation to pedagogical value; and to examine systemic assessment structures and their effects on teaching, learning, and policy decision-making To integrate assessment with instruction to support student learning	• Pre-service teachers engage in examining assessment theories, policies, and practices in relation to the contemporary school contexts. • Pre-service teachers engage in understanding the key concepts/principles of assessment, which include assessment for learning, assessment of learning, assessment design, and principles for fair student assessment. • Pre-service teachers are provided with theoretical and philosophical positions so that they will learn how to enact sound (reliable, valid, and fair) assessment practices; learn how to develop and use assessment to promote student learning; and learn about systemic policies, rubrics, feedback mechanisms, observations, portfolios,

			testing, peer- and self-, and collaborative-assessments.
University of New Brunswick	Assessment in Education Classroom Assessment	To introduce students to the what, why, and how of classroom-based assessment; to examine exemplary practices in relation to formative (assessment for and as learning) and summative assessments (assessment of learning); and to examine the nature and purpose of large-scale assessment To examine current assessment issues, procedures, and techniques as well as how these can be used to improve teaching and learning To examine the concepts and principles of teacher made tests, standardized tests, test construction, selection, administration, and interpretation across the curriculum	• Pre-service teachers learn how to define clear learning/assessment targets and standards-based assessment; to design assessment techniques, to match assessment with learning goals, and to communicate assessment results.
Australia: Queensland University of Australia	Early Childhood and Primary/Secondary Assessment 1: Summative and Diagnostic Assessment Assessment 2 Using Data from Teaching	To focus on the planning of summative and diagnostic assessment, as well as their implications for teaching and learning in inclusive educational contexts	• Through an integration of assessment to the curriculum units, site visits, and field experience, it develops pre-service teachers' professional knowledge, skills, and practices. • Pre-service teachers engage in using assessment data to make

	Year 4, Term 1		informed decision about teaching; and learn how to use statistical methods to analyze and interpret high-stakes assessment data.
Singapore: National Institute of Education, Nanyang Technological University	Assessing Learning and Performance Year 2	To provide pre-service teachers the ability to understand and apply the basic principles of educational assessment	• Pre-service teachers are equipped with the necessary knowledge and skills to monitor, appraise, and evaluate learners' content knowledge, progress and performance achievement; they are introduced to traditional paper and pencil testing methods; performance-based, authentic assessment procedures; and assessment for learning.

As shown in Table 1, at least an assessment course is offered to pre-service teachers in most of the higher education institutions represented here. The objectives are focused on developing pre-service teachers' assessment literacy through their understandings of the purposes and functions of different types of assessments. The courses have placed greater emphasis on the learning and mastery of these content areas: assessment for learning, authentic assessment, performance assessment, assessment design, and principles for fair student assessment. Some institutions also provide pre-service teachers with the knowledge and skills of analyzing and using large-scale assessment in the context of teaching and learning. As assessment is a dynamic process and is socio-politically situated, a couple of the institutions have created opportunities for pre-service teachers to reflect on the influences of personal factors and sociocultural contexts on their own assessment practices. Pre-service teachers' ability to engage in reflections is key to their professional learning (Koh & Tan, 2016). More importantly, all the courses take into account a close alignment between assessment, curriculum, teaching, and learning. This is consistent with what Shepard (2000) has espoused: "Assessment should be an integral part of

instruction" that aims to support and enhance student learning. Similarly, Ingvarson et al. (2014) highlight the importance of assessment as part of a strong core curriculum.

When examining course listings in teacher education programs in Ontario, Finland, New Zealand, the United Kingdom (e.g., University of Cambridge, London Institute of Education), and the United States (e.g., Teachers College, Columbia University; Stanford University), we found that instruction in assessment and the development of pre-service teachers' assessment literacy is woven throughout the curricula (Sahlberg, 2010; Sahlberg, 2011). We did not include the course objectives and learning outcomes of these institutions in Table 1 due to insufficient information from their respective websites. In Ontario, Finland, and the United States, prospective teachers undertake a master's degree in a subject area, including a thesis of original research. There is also a new focus on data-driven instruction in the United States (National Council on Teacher Quality, 2012). According to the National Council on Teacher Quality (2012), only 21% of pre-service teacher education programs that were evaluated adequately addressed topics in relation to assessment literacy. An adequate program was defined as providing a foundation in assessment literacy, with attention to formative and summative classroom assessments, as well as standardized tests and interpretation and application of assessment data to inform and adjust instruction. Based on their research in the United States, Wallace and White (2015) contend that teacher educators must continue to develop new approaches to enrich and broaden pre-service teachers' assessment literacy and to provide them with learning opportunities for exposure to and discussion of reform-based assessment purposes, content, and functions.

Trends in Developing Canadian Pre-service Teachers' Capacity in Classroom Assessment

Since the late 1960s, there has been a transfer of teacher preparation across Canada from normal schools to universities, which has greatly influenced teacher curricula, including longer programs, more

highly trained faculty, and a greater emphasis on scholarship (Channon, 1971). Often directed by accreditation requirements, teacher education offers non-specific programs which may not be reflective of the diversity of their teaching contexts (e.g., urban or rural) (Kaden & Patterson, 2014). Adding to this complexity of preparing students for future classrooms, is that many pre-service teachers enter their field practicums or early years of teaching with a limited collection of assessment strategies and techniques (Yilmaz-Tuzun, 2008). In teacher education programs, assessment courses tend to be taught without a focus on specific assessment strategies related to the content or discipline area. Black, Harrison, Lee, Marshall, and Wiliam (2004) argued that the pedagogical content knowledge must include not only understanding difficulties in context but also the ability to respond to the learners' challenges in learning the content. As such, assessment needs to be an integral component within curriculum courses.

According to DeLuca and Klinger (2010), within public education in Canada, the United States, and the United Kingdom, there has been a growing focus on accountability frameworks, a shift toward standards-based education, and greater emphasis on transparency of assessment practices in the classroom. Given these shifts in public education, there is a growing need for teacher competency in student assessment and evaluation. DeLuca and Klinger (2010) argued that with "increasing importance of both large-scale and classroom assessment, developing assessment literacy in teacher candidates needs to be an explicit component of teacher education programs" (p. 419).

DeLuca and Bellara (2013) reported that in the United States a number of policies and standards have been developed to promote teacher assessment competency with a particular focus on pre-service teacher education. Their study examined the alignment between the following: "teacher education accreditation policies, professional standards for teacher assessment practice, and preservice assessment course curriculum" (p. 356). One item they found was that education programs are addressing the

assessment in the various components of the program, as well as in their discrete assessment courses. What they noted was the restricted amount of time for assessment courses left limited teaching time to provide pre-service teachers with "a strong theoretical and practical foundation in a*ssessment processes, assessment fairness,* and *measurement theory*, let alone providing adequate coverage of more integrated and complex concepts of *assessment for learning, communication of assessment information*, and the linkages between *classroom environment* and *assessment*" (pp. 366–367). They, along with other researchers cited in their article, acknowledge that explicit assessment instruction is beneficial in fostering skill development and confidence. Yet, the limited amount of time does not lead to major change in pre-service teachers' understanding and practice of assessment (DeLuca & Bellara, 2013).

An Example of Teaching Assessment in a Western Canadian University

Over the past 2 decades, two major shifts occurred in how assessment has been taught in teacher education at the University of Calgary. From 1996 to 2010, the bachelor of education (BEd) program focused on inquiry-based learning. In this 2-year after degree program, it was designed based on "a series of interrelated themes" (University of Calgary, 2009–2010). The courses were described as being "offered as integrated thematic units. These thematic units are delivered through a lecture series, case-based tutorials, professional study seminars, independent inquiries, and field experiences" (University of Calgary, 2009–2010). Given the design of the program, there was no stand-alone assessment course. Rather, assessment was to be embedded in courses throughout the program. In the 1st semester of this 2-year after degree program, using a case-based approach, pre-service teachers were introduced to the concepts of assessment and assessing student learning in one case study. In the 2nd semester, pre-service teachers learned more about assessment within their curriculum courses and from their observations and interactions during the field experience component. In the 3rd semester, they were involved in an

extended field experience or practicum where they had opportunity to observe, as well as engage in assessment under the mentorship of their partner teacher and field supervisor. In the 4th semester, one of the specialization topics from which students could select was that of assessment.

In Alberta, the teaching quality standards are used for teacher certification. Once pre-service teachers completed their BEd program they could apply for a provincial interim professional teaching certificate. Teachers who hold an interim professional certificate are required to have specific knowledge, skills, and attributes (KSAs) and to be able to apply these KSAs with regard to student learning. Item K of the KSAs is student assessment:

> They know how to assess the range of learning objectives by selecting and developing a variety of classroom and large scale assessment techniques and instruments. They know how to analyse the results of classroom and large scale assessment instruments including provincial assessment instruments, and how to use the results for the ultimate benefit of students. (Alberta Education, 1997, p. 2)

Connections to the KSAs were made and addressed throughout the BEd program.

In the faculty of education, a strategic task force committee was set up in 2010 to review and make recommendations for revamping the BEd program. The revamped program was implemented in fall 2011 and was based on the philosophy of the Five Dimensions of Engaged Inquiry: 1) “engaged in learning about learning”; 2) “engaged with/in specializations”; 3) “engaged with contemporary contexts”: 4) “engaged with/in teaching and learning communities”; and 5) “engaged in ethical action” (Faculty of Education, 2015–2016, p. 5). The BEd program is grounded on the following nine goals:

- foster professional competencies that are appropriate to a complex and rapidly changing world;
- have an applied and critical knowledge of theories of learning and learners;
- develop the specialized knowledge associated with teaching a discipline, and in fostering an interdisciplinary approach;

- critically evaluate and respond to the contexts of contemporary learning in relation to changing sociocultural, political, economic, environmental, and technical realities within the broader public sphere;
- foster a critical and pragmatic knowledge of diversity in education;
- contribute actively to knowledge in the field of education;
- understand the legal, moral, and ethical frameworks of contemporary education;
- respond to the diverse needs of students; and
- build research capacity as teacher professionals. (Faculty of Education, 2016)

With the revamped BEd program, assessment content was delivered to pre-service teachers in curriculum specialization courses, as well as in a dedicated assessment course offered in the final year. In the 1st year of the program, the assessment course was offered as a plenary with two instructors with a teaching assistant teaching in a lecture format. Before the 2nd year of the program, the assessment course was redesigned using the signature pedagogy of problem-based learning.

In the 2014–15 academic year, members of a curriculum review committee were actively engaged in reviewing the BEd curriculum. The extensive review helped identify strengths and areas for further refinement (Faculty of Education, 2014). Four recommendations were made in relation to the teaching of assessment. First, there was a need for greater integration in the curriculum specialization courses with a focus on pre-service teachers' knowledge of formative and summative assessments. Second, it is important to provide explicit linkages of assessment theory to classroom practice in field experience courses. Third, building pre-service teachers' capacity in making observations of classroom assessment practices is essential while they are engaged in their field experience courses. Fourth, articulating assessment practices by instructors in the BEd courses will enable pre-service teachers to develop a deep understanding of the linkage between learning outcomes and assessment or learning

tasks, as well as the nature of the assessment being implemented in a course (Faculty of Education, 2014). These recommendations have been addressed in the program.

In the following section, we illustrate the importance of the redesign of an assessment course to build Canadian pre-service teachers' capacity in classroom assessment.

Assessment Curriculum Redesign

According to a joint report by the Partnership for 21st Century Skills and the American Association of Colleges of Teacher Education (2010), teacher education programs should equip pre-service teachers with the assessment strategies for 21st-century competencies through high-quality assessment courses. Teachers' capacity to select, design, and use a broader range of assessment tools or strategies is needed to enable important learning goals and processes (i.e., 21st-century competencies) to be captured in a reliable and valid way in the day-to-day classroom. Hence, there is an urgent need for teacher educators to design and deliver high-quality assessment courses to build pre-service teachers' capacity in classroom assessment, especially in the areas of authentic assessment and assessment for learning. As assessment drives along instructional and pedagogical practices, teacher educators should also model innovative instructional and pedagogical practices that are well aligned with assessments. Our analysis of the assessment courses offered in the various higher education institutions reveals that although the contents of those courses are well suited for developing pre-service teachers' assessment literacy, a traditional lecture approach has been predominantly used in many of the institutions. In some institutions, summative tests or end-of-course exams are used to assess pre-service teachers' learning outcomes.

To prepare pre-service teachers who were enrolled in the 2-year BEd degree, an assessment course was designed and offered in the winter term of 2013. Despite the course objectives of developing

pre-service teachers' deep understanding of the purposes and functions of alternative forms of assessment, a traditional lecture approach was used to deliver the course content due to structural constraints (e.g., large class size, restricted learning environment). The approach was found to be ineffective for demonstrating a close alignment between the intended curriculum, authentic assessments (i.e., learning tasks or assignments), and pedagogical practice in the context of curriculum and assessment reforms. As a result, the assessment course was redesigned using a problem-based learning (PBL) approach from June to December 2013. PBL has been chosen as one of the five signature pedagogies at the faculty level to develop pre-service teachers' professional competences.

Shulman (2005) defined signature pedagogies as "the types of teaching that organize the fundamental ways in which future practitioners are educated for their new professions" (p. 52). The novices are often instructed in critical aspects of the three fundamental dimensions of professional work—to think, to perform, and to act with integrity. *Learning to teach* requires pre-service and beginning teachers not only to think like a teacher but also to act as a teacher (Darling-Hammond, 2006). As assessment and instruction are two sides of the same coin, we contend that the same principle should apply to *learning to assess*. Although Shulman (2005) has not identified a particular type of teaching or instruction to be the signature pedagogy, a variety of instructional approaches have been used as signature pedagogies across different disciplines and professions. Among them, PBL is a commonly used pedagogical approach.

Using PBL, five problems reflecting the assessment trends, debates, and issues in contemporary educational contexts were developed and written by Koh (2014b). The problems were related to the following five important topics: assessment balance, assessment for learning, developing high-quality assessment tasks, designing high-quality rubrics, and grading and reporting practices.

Multiple sections of the assessment course were taught over a period of 5 weeks by instructors using PBL, with small class sizes ranging from 25 to 30 pre-service teachers. In each classroom, pre-service teachers worked with their peers in small groups to solve complex, real-world problems related to assessment. They worked on one problem per week. These problems were embedded within the authentic assessment tasks that aimed to develop the pre-service teachers' assessment content knowledge, as well as their 21st-century competencies, which included critical thinking, creative problem-solving, communication, collaboration, and self-directed learning (Gijselaers, 1996; Wood, 2003). Many pre-service teachers were able to sustain their interests in course content and reading materials because they realized that they were learning relevant assessment knowledge and skills to prepare them for success in the field and in their future teaching profession. Through the instructor's modeling of PBL and authentic assessment practices, the pre-service teachers were also exposed to professionally-valued understandings, skills, and dispositions that prepare them to implement sound assessment and pedagogical practices when they become beginning teachers (Shulman, 2005). Pre-service teachers' mastery of the 21st-century competencies and rich experiences of PBL and authentic assessment are deemed important for improving their own classroom practices, which in turn leads to improvement in student learning (Darling-Hammond, 2006).

Studying the Impact of Assessment Curriculum Redesign

For 2 years, we have systematically examined the impact of the PBL approach on pre-service teachers' assessment literacy through a program evaluation. The purpose of the evaluation was twofold: (1) to examine the extent to which instructors' use of PBL is effective in facilitating pre-service teachers' learning of assessment; and (2) to determine the extent to which PBL is effective in developing pre-service teachers' literacy in the redesigned assessment course.

Over the course of the 2 years, we found pre-service teachers developed a greater understanding and appreciation for achieving a balance between summative and formative assessments. Through the use of PBL, they were connecting theory to practice and developing a greater knowledge with regard to the purposes and functions of assessment. From the nature of the learning tasks within the problems, they learned how to design and use rubrics in various subject areas throughout K–12.

The instructors found the problems to be grounded in real-world contexts. They reported that the five problems were connected to major assessment topics and issues found in contemporary classrooms. They noted that many of the principles to be taught in the course were modeled by the way the course was set out to be taught. Further, they appreciated the layout of the course, because it had a logical flow of content and a good sequencing of authentic tasks and rubrics.

Based on anecdotal evidence, it was evident that pre-service teachers were developing their assessment literacy through their experience in PBL within this course. They developed a sound understanding that assessment is dynamic and that it is about improving student learning. Through this experience, pre-service teachers were developing a greater understanding of classroom assessment.

The preliminary findings of our evaluation have given us greater insight into the potential of using PBL in assessment courses to build pre-service teachers' capacity in using classroom assessment to support student learning. Through pre-service teachers' experience of working through the problems and engaging in discussion with peers and instructors, they developed a deeper understanding of assessment strategies and practices. Given this experience with PBL, they were engaged in further development of their own assessment literacy.

Implications for Practice

The redesign of the course shifted from a lecture to a PBL approach that used five authentic problems. Drawing on our experiences and the program evaluation of PBL used in developing pre-service teachers' assessment literacy, the following four implications for practice have been identified:

1. time for transformation of learning;
2. programmatic strategy for assessment integration;
3. educational development; and
4. further evidence-based research.

First, time needs to be given for the transformation from knowledge acquisition to application. Within a 5-week course, it is difficult to expect pre-service teachers to develop a strong grounding in assessment both at the theoretical and practical levels. Through a PBL approach, they are beginning to apply theory to practice. However, greater opportunities and various diverse experiences with assessment strategies and practices will help pre-service teachers to develop a deeper understanding and greater confidence in their assessment of student learning. As such, the teaching of assessment needs to be intentionally integrated in meaningful ways in courses and across a program.

Second, an intentional programmatic strategy for assessment integration across the program is required. From the start to the end of the program, careful consideration needs to be given to the integration of assessment literacy development that utilizes various strategies (e.g., explicit, embedded in curriculum courses, modeling of practice by instructors). The notion of using a gradual and graduated approach to the teaching of assessment will help accommodate different levels of complexity that builds on the previous foundation. For an integrated programmatic strategy, this will also require all instructors to understand to what degree and level assessment is to be embedded in each course. They all have a responsibility in how assessment content is taught and modeled to pre-service teachers across the program.

Third, there is a need for a willingness by instructors, assigned to teach a course that has a PBL approach, to learn how to teach using this signature pedagogy. The nature of the educational development goes beyond initial orientation or a workshop to what PBL is and how it is used to support assessment literacy. Instructors need to understand the surface, deep, and implicit structures (Shulman, 2005) of PBL and what that means in terms of content and the facilitation of the learning. Reflecting on their current practice, instructors may need to enhance certain knowledge areas and skill sets to scaffold pre-service teachers' learning of assessment. Further, this educational development should occur over time, when they may engage in a community of practice approach to learning with and from others (Lave & Wenger, 1991).

Fourth, further evidence-based research is required to determine when and how a teacher education program focuses on building pre-service teachers' capacity in classroom assessment or in developing pre-service teachers' assessment literacy. Should an assessment course be offered at the beginning, middle, or end of a program? If pre-service teachers undertake an assessment course at the beginning of a program, what will be the degree of its impact on their assessment knowledge? How does it compare to what would occur at the middle or end of a pre-service teacher education program? What counts as evidence of the impact of an assessment course, so as to determine when is the right time to equip pre-service teachers with the relevant assessment knowledge and skills? Further, if a PBL approach is used, what particular research methodology can be used to determine the effectiveness of PBL on pre-service teachers' learning of assessment? These questions will help to frame the next steps in our research, in terms of how to design learning that impacts the development of pre-service teachers' assessment literacy.

Conclusion

In this chapter, we began our discourse on the global trends in building pre-service teachers' capacity in classroom assessment based on our analysis of assessment courses in a selected sample of teacher education programs. We found that all the courses shared a common objective in developing pre-service teachers' assessment capacity or literacy. However, most of these courses were delivered using a traditional lecture approach. The trends in developing pre-service teachers' capacity in classroom assessment revealed a lack of high-quality assessment courses in Canadian teacher education programs. However, many institutions have moved toward revamping pre-service teacher education programs to help prepare Canadian pre-service teachers for a sea change in assessment policies and practices. We analyzed an example of teaching assessment at the University of Calgary and our initiative in assessment curriculum redesign using PBL as a signature pedagogy.

With increasing global change in education, Canadian teachers are expected to use a wide variety of assessment strategies to promote students' learning and mastery of 21st-century competencies. The use of PBL in the course redesign is unique in terms of facilitating pre-service teachers' learning of assessment through complex, real-world problems that are embedded within authentic assessments. As such, it addresses the limitations of traditional didactic pedagogical approach and assessment practice (e.g., tests, exams). The goal of the assessment course was to prepare pre-service teachers to be competent and confident in using classroom assessment to support students' learning and mastery of 21st-century competencies. Hence, it is important for instructors to model innovative assessment and pedagogical practices to pre-service teachers. Further, this grassroots initiative of using a signature pedagogy (i.e., PBL) for developing assessment literacy aligns with global education reforms.

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Part II

How are the capacities essential for new teachers identified and cultivated within teacher education programs? How do the capacities that are developed by teachers prior to and following their education program influence the education program?

Chapter 04: Cultivating Essential Teaching Capacities through Research-Informed and Adaptive Teacher Education

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Abstract

A number of ways in which two Alberta universities are cultivating essential teaching capacities through research-informed and adaptive teacher education are illustrated in this chapter. Based on an comprehensive review of the research, the following five capacities of effective teaching were collaboratively developed under contract to the Ministry by the Association of Alberta Deans of Education: (a) designing academically and intellectually engaging learning; (b) engaging all students in meaningful, situated learning experiences; (c) assessing student learning to guide teaching and improve learning; (d) fostering supportive learning relationships; and (e) collaborating to enhance teaching and learning. This chapter illuminates a number of ways in which the capacities are approached as more than just knowledge and skills in our programs. We show how each capacity is cultivated as an area of teaching expertise that involves the ability to meet complex demands, by drawing on and mobilizing psychosocial resources in a particular context.

Cultivating Essential Teaching Capacities through Research-Informed and Adaptive Teacher Education

Teacher education programs in Canada are guided by a variety of goals designed to build beginning teachers' expertise to scaffold student learning in a rapidly changing contemporary world. Such intentions are derived from a number of sources, including provincial teacher certification standards, educational research, and demographic shifts. Grant (2008) suggested that successful programs consider these goals along with the experiences and the nature of prospective teachers to develop an array of teacher capacities: specifically, teacher knowledge, skills, and dispositions. *How are the capacities essential for beginning teachers identified and cultivated within teacher education programs in Alberta?* Our chapter addresses this question by examining recent initiatives undertaken by two post-secondary institutions in Calgary to enact essential teaching capacities through research-informed and adaptive teacher education. Unlike "routine experts" who develop and refine a set of core competencies throughout their careers, adaptive experts are flexible, willing to reconsider presuppositions, and responsive to changing contexts (Bransford, Derry, Berliner, & Hammerness, 2005, p. 49). Though the provincial teaching competencies (Alberta Education, 1997) are nearly 20 years old, the two teacher education programs have each adapted these competencies to their specific institutional context based on emergent research to ensure our graduates are in step with current research findings. Like the relatively new teacher education program at Mount Royal University (MRU), the renewed University of Calgary (U of C) Werklund School of Education (WSE) program is adaptively implementing approaches informed by contemporary studies in teaching and learning and recent research on teacher education.

The opportunity to adaptively align the two teacher education programs to essential capacities came largely as a result of the broader political context in Southern Alberta. The U of C had provided teacher education programs since 1967, but had received persistent external criticism over the first decade of the twenty-first century from a variety of stakeholders in relation to a number of program areas. In response to these criticisms, the U of C fundamentally redesigned its program in 2009–2010 in consultation with the professional community. A new bachelor of education program was implemented in 2011, including a 2-year after degree and a 5-year combined degree. Around the same time period, MRU (formerly Mount Royal College) achieved university status in 2009, and received accreditation to offer a teacher education program that was launched in 2011. In both cases, the design of the programs came at a time when provincial and national discussions were occurring about more general changes required in teacher education programs (Crocker & Dibbon, 2009). For the U of C, there was a political need to respond to criticisms; for MRU, a political opportunity became apparent to raise its status as a new university.

Though each of the two teacher education programs launched in Calgary in 2011 is quite distinct, they were both founded on similar ideas about quality teacher education. Each program set out to create a well-prepared and professional "community of teachers that reflects the diverse communities they serve, with a range of backgrounds and experiences, so they can connect deeply with students" (Bransford, Darling-Hammond & LePage, 2005, p. 31). Each program has also been attentive to recent studies of learning to better understand the cognitive, emotional, and social processes that result in the most effective learning as suggested by Darling-Hammond and Bransford (2005). In their own specific ways, the programs have used this knowledge to design curriculum, teaching, and assessment to help beginning teachers learn more deeply and effectively. Program development in both programs was informed by a three-part conceptual framework by Bransford, Darling-Hammond and LePage (2005)

that organized “the vast amounts of information relevant to effective teaching and learning” in “three general areas of knowledge, skills, and dispositions” (p. 10) that are important for any teacher to acquire:

- Knowledge of learners and how they learn and develop within social contexts;
- Conceptions of curriculum content and goals: an understanding of the subject matter and skills to be taught in light of the social purpose of education; and
- An understanding of teaching in light of the content and learners to be taught, as informed by assessment and supported by classroom environments. (p. 10)

Over the fall of 2011 and early winter of 2012 the Association of Alberta Deans of Education (AADE) was commissioned by the Alberta Ministry of Education to develop *A Framework for Effective Teaching for Learning* (AADE, 2012). Based on an extensive review of the literature on learning and teaching, the document was prepared to support the redesign of provincial teaching competencies. It draws upon the *Teaching Effectiveness: A Framework and Rubric* (Friesen, 2009), recent conceptions of teaching (e.g., Binkley, Erstad, Herman, Raizen, Ripley, Miller-Ricci, & Rumble, 2012; Danielson, 2007; Hattie, 2012; Koehler & Mishra, 2008; Marzano, 2007; Stronge, 2007) and a large body of research from the learning sciences (e.g., Bransford, Brown, & Cocking, 2000; Friesen, 2009, 2011; Friesen & Lock, 2010; Koehler & Mishra, 2008; OECD, 2001; Sawyer, 2006, 2008; Scardamalia & Bereiter, 2006; Willms, Friesen, & Milton, 2009). Three of the four authors of this current chapter were members of the seven-person team who wrote the AADE document. In total, five MRU and U of C faculty members, including both deans, participated in the collaborative development process that generated AADE’s five teaching capacities. This involvement contributed significantly to the ongoing adaptive approach to infusing the best available evidence into each of the two new programs.

The chapter is organized around the five AADE capacities of effective teaching: (a) designing academically and intellectually engaging learning; (b) engaging all students in meaningful, situated learning experiences; (c) assessing student learning to guide teaching and improve learning; (d) fostering supportive learning relationships; and (e) collaborating to enhance teaching and learning (AADE, 2012). We contend that the five interrelated capacities generate research-informed images of robust teaching and learning for today's complex and rapidly changing world. Each capacity describes an important area of teaching expertise that is contingent on the dynamic interplay of content, teacher, learner, and context. We then illustrate how the teaching capacities are cultivated in our programs.

Before moving into the first research informed capacity and supporting research, it is important to clarify that our use of the term *teaching capacity* is informed by the literature on *teaching competency*, which is understood as an interrelated set of attitudes, skills, and knowledge that teachers draw upon and apply to a particular context to support successful learning (Alberta Education, 2011; Friesen, 2011; OECD, 2005; Tardif, 2006). Teaching competence means "knowing how to act by making appropriate choices and the proper use of various resources in highly complex situations" (Friesen, 2011, p. 11). Effective practice in the AADE framework requires educators to develop and demonstrate competency in five essential teaching capacities.

Capacity One: Designing Academically and Intellectually Engaging Learning

The first essential teaching capacity is based on the principle that *the effective teacher designs academically and intellectually engaging learning.* This capacity is founded on the principle that *learning is socially constituted and begins with the thoughtful and intentional design of academically and intellectually engaging learning environments.* While academic engagement involves important learning that helps students succeed in school, intellectual engagement refers to an absorbing, creatively energizing focus requiring contemplation, interpretation, understanding, meaning making, and critique.

The term intellectual engagement reflects the interrelated connection between emotion and cognition. Intellectual engagement results in a deep, personal commitment on the part of learners to explore and investigate ideas, issues, problems, or questions for a sustained period of time.

To design challenging work that engages all learners, teachers require a deep understanding of their disciplines, the students they teach, how people learn, the resources available to them, and the curriculum outcomes. These design ideas are supported in a number of studies (Bransford et al., 2000; Clifford & Marinucci, 2009; Darling-Hammond, 2007, 2008; Darling-Hammond & Bransford, 2005; Darling-Hammond & Rothman, 2015; Friesen, 2009, 2011; Friesen & Lock, 2010; McTighe, 2010; OECD, 2007;, 2013; Perkins, 2010; Rose & Meyer, 2006; Sawyer, 2006; Wiggins & McTighe, 2005; Willms, Friesen, & Milton, 2009).

Capacity in this area of teaching practice involves the design of academically and intellectually engaging learning. Evidence of teaching practice reflecting this essential capacity can include, but is not limited to:

- connecting with students' prior knowledge;
- linking curriculum outcomes to students' lives in the world to develop disciplinary expertise;
- organizing subject matter knowledge around key disciplinary concepts;
- designing learning tasks that tap into children's individual interests and abilities;
- creating opportunities for productive collaboration and teamwork; and
- incorporating assessment into the design of daily, unit, and yearly plans.

Cultivating the Capacity to Design Engaging Learning

We have an obligation to prepare our graduates to meet the Alberta Education Teaching Quality Standard (Alberta Education, 1997) required for certification, but we believe the AADE capacities

provide a richer and more challenging conception of teaching and learning. For example, one of our program capacities reads as follows: *Design activities that are clearly aligned with learning goals, require deep thinking and support student engagement and choice*. While the Teaching Quality Standard requires teachers to plan using the programs of study and to "vary their plans to accommodate individuals and groups," our teaching capacity also incorporates the importance of promoting deep thinking and student engagement, goals that are consistently espoused in current research literature on how people learn (Bransford et al., 2000; Hattie, 2012).

In both programs, teacher candidates are immersed in the importance of designing rich learning tasks grounded in the disciplines. They have extensive experience with the program of studies in each subject area and consistently link these outcomes to students' lives to create rich learning experiences. In fact, at MRU, teacher candidates take a curriculum course in eight different subject areas. One could argue that separate courses for each undermine the development of interdisciplinary inquiry. On the contrary, many course assignments explicitly require planning documents that integrate program of study outcomes from multiple disciplines and the application of these plans in practicum. Teacher candidates emerge with deep disciplinary expertise that helps them to identify interdisciplinary possibilities and complex questions that cannot be answered by a sole discipline. These courses help teacher candidates to understand how to consider the disciplinary questions connected to the broader program of studies, and, moreover, to apply and extend the relevance and show how those disciplinary questions necessarily inform real world issues that are found in our daily lives. Final practicum projects are showcased to peers, faculty, and the general public for critical feedback and close examination of student learning. In these projects, teacher candidates at MRU identified a topic worthy of inquiry linked either to a curricular topic or a professional issue and framed this as a question. One project integrated Grade 5 science, social studies, and language arts to explore the question, "How can technology be used

to enhance human well-being?" Professional inquiries explored topics such as the impact of replacing desks with flexible seating and the influence of deep questioning on student learning. These projects included the design of learning experiences, literature/resource review, assessment of student learning, and reflection.

Teacher candidates at WSE engage in a similar process describe as part of our cultivation of Capacity Five later in the chapter. Initial indicators suggest that teacher candidates are purposeful in considering the question that will inform their design projects. They demonstrate a clear and articulated link to the program of studies and the disciplinary knowledge. Teacher candidates see the potential for deepening their disciplinary knowledge and drawing from others' expertise in other disciplinary areas. The result is twofold. Teacher candidates foster deeper expertise in their disciplinary knowledge by articulating the underpinning principles within that discipline to children, but they also recognize the interdisciplinary aspects that are necessary to address broader questions in society. This process increases engagement in learning and elevates the quality of questions and discussions with clear relevance to real world dilemmas.

Capacity Two: Engaging All Students in Meaningful, Situated Learning Experiences

Engaging all students in meaningful, situated learning experiences is the second essential teaching capacity. Capacity Two involves teaching practice that engages students in learning, is personally relevant, and is deeply connected to the world. Students become intellectually engaged through work that teachers design for and with them to instill depth of thinking and intellectual rigor in situated learning environments. Situated learning environments move away from "a transmission-and-acquisition style of instruction, toward more collaborative, active and inquiry-oriented classrooms" to create contexts wherein students interact with each other, experts, and an array of learning resources

(Greeno, 2006, p. 92). Teachers work to continually draw out students' pre-existing understandings to scaffold them to a place of deeper learning and deeper understanding.

Digital technologies play a powerful role when used to support learning and knowledge-building activity. They are particularly powerful not only in helping students solve problems but also in posing new problems. These approaches allow students to be engaged in elaborated forms of communication, collaboration, requesting and gathering feedback, creating new products, and participating in and contributing to local and global learning communities. A multitude of recent research studies take these approaches to sponsoring student learning (e.g., Binkley, Erstad, Herman, Raizen, Ripley, Miller-Ricci, & Rumble, 2012; Bransford et al., 2000; Dede, 2007; 2010; Clifford & Marinucci, 2009 Friesen, 2011; Friesen, Jardine, & Gladstone, 2010; Friesen & Lock, 2010; Greeno, 2006; Hattie, 2009, 2012; Koehler & Mishra, 2008, Mishra & Koehler, 2006; Rose & Meyer, 2002, 2006; Sawyer, 2006; Scardamalia & Bereiter, 2006; Wiggins & McTighe, 2005; Willms, 2003; Willms, Friesen, & Milton, 2009).

Evidence of teaching practice reflecting this capacity and the research related to Capacity Two can include, but is not limited to:

- communicating and monitoring high and achievable expectations;
- translating curriculum content into meaningful student work that develops student competence in an area of study through depth of thinking and intellectual rigor;
- applying a range of instructional strategies, including the appropriate use of technology, that vary according to context, content, desired outcomes and learning needs of students;
- scaffolding student understanding based on a foundation of knowledge, skills and strategies organized to facilitate retrieval and application; and
- addressing questions that have relevance beyond the classroom, require elaborated forms of communication and invite community engagement.

Cultivating the Capacity to Engage All Students in Meaningful, Situated Learning

Further to Capacity Twe, opportunities are provided to teacher candidates to engage with the community in seeking collaborative forms of communication, feedback, and consultation. As part of embedded relevant, engaging learning, there is a commitment to reaching out to other educational stakeholders who can support and mentor teacher candidates in the design of their work. This is purposefully integrated with the courses and the overall program design so that teacher candidates recognize that such engagement is not peripheral to the course objectives, but rather a necessary and integral function of developing relevant learning.

Mandatory courses for all education students have been designed in consultation and collaboration with many of the educational stakeholders in the professional field to augment learning that is relevant, applicable and meaningful for students. Both programs collaborate with established partner Calgary Reads, a non-profit agency focused on early literacy, to engage teacher candidates in professional development and tutoring. Teacher candidates at WSE volunteer as tutors and earn community service learning credits while teacher candidates at MRU engage in related course work to analyze early literacy development. Courses on child development and inclusive education partner with schools and psychological agencies to help pre-service teachers identify and support the diverse needs of students through case study projects and related course work to analyze early literacy development. Courses on child development and inclusive education partner with schools and psychological agencies to help pre-service teachers identify and support the diverse needs of students through case study projects. TELUS Spark, the local science centre, has a mandate to support STEM for teacher professionals, including teacher candidates in our programs. Teacher candidates at MRU engage in

curriculum development to support the science centre as part of their science curriculum course. STEM courses at WSE are based on leading edge research scaffolded by a number of faculty experts with expertise in mathematics, science, and related disciplines. WSE teacher candidates have the opportunity to design and implement inquiry-based science experiences in collaboration with the Biogeoscience Institute at the Kananaskis Field Station, Rocky Mountain YMCA, while MRU teacher candidates live at Tim Horton's Children's Ranch for several days, where they engage in field study with local school children. Teacher candidates are empowered when they witness the power of experiential learning among the young visitors to these sites. These are illustrative of the way in which teacher education programs can draw from the profession and the community to elevate the ways in which teacher candidates can deepen their understanding of their discipline, see how it is applied in the community, and design learning that will show the relevance and meaning for students when they engage in these learning activities.

Such off-campus experiences arguably provide some of the most powerful opportunities to engage in "meaningful, situated learning experiences," but typical course work also invites teacher candidates to develop rich learning experiences that align with this capacity. For example, teacher candidates make extensive use of Google Docs for collaborative planning, resource sharing, and knowledge mobilization. Three arts courses at MRU, two of these as part of the final practicum, encourage teacher candidates to engage their students in tasks that appeal to the interests of the learners and require "elaborated forms of communication" to communicate ideas artistically. These "community art projects" are intended to enrich the life of the school in which these teacher candidates are completing their practicum.

Capacity Three: Assessing Student Learning to Guide Teaching and Improve Learning

Essential Capacity Three is *assessing student learning to guide teaching and to improve learning.* The intentional design of assessment for learning that invites students to co-create assessment criteria with teachers is one of the most powerful teaching strategies. When instruction and assessment work seamlessly together, the integrated approach enables students to think deeply to understand next steps and to become increasingly self-directed in their learning. Ongoing formative assessment is required throughout the learning activity to make students' thinking visible to both students and teachers. Assessment needs to be embedded in instruction and must include clear criteria for performances of understanding, along with helpful feedback during learning. These approaches make learning goals transparent and ensure that learners receive substantial, regular, timely, specific, meaningful feedback to improve their learning on an ongoing basis. Recent studies support the application of these learning strategies (e.g., Assessment Reform Group, 2006; Black & Wiliam, 1998; Friesen, 2009, 2011; Friesen & Lock, 2010; Goodrich, 1999; Hattie, 2009, 2012; Wiliam, 2011).

Evidence of teaching practice that assesses learning to build student competence and to guide teaching practice in keeping with Capacity Three can include, but is not limited to:

- embedding assessment in the design of teaching and learning;
- developing student understanding of learning intentions and achievement standards;
- involving students in individual and peer formative assessment;
- providing specific, timely, constructive feedback during instruction to allow students to take their next learning steps; and
- collaborating with students and colleagues to review and reflect on assessment data.

Cultivating the Capacity to Assess Student Learning to Guide Teaching and Improve Learning

The research literature on assessment reminds us that student learning and metacognition are enhanced when outcomes are clear and students understand how to achieve the outcomes (Bransford et al., 2000; Chappuis, Stiggins, Chappuis, & Arter, 2012; Sawyer, 2006; Wiliam, 2011). Our programs have identified key teaching capacities and created curriculum maps that identify the courses and contexts where these capacities are introduced, practiced, and finally implemented. The intent is to provide explicit assessment mapping across the entire degree program so that there is a clear scope and sequence for teacher candidates. These have provided clear direction for our programs and are particularly influential in the practicum setting when teacher candidates are ultimately responsible to demonstrate competence in all of these outcomes in order to achieve certification. They also model for our teacher candidates how outcomes can provide direction for learning.

Students are required to consider the design of assessment for learning and of learning as they progress through the program. Teacher candidates are asked to identify formative assessment in their first observations in schools and later design annotated lesson plans with explicit and purposeful assessment articulated in each lesson. All design projects in both programs must have clear assessment criteria with a holistic plan for differentiated learning needs with an emphasis on the formative forms of assessment throughout the learning activities. One of the MRU program capacities requires teacher candidates to *provide specific, timely, constructive feedback to help students monitor their own learning.* To help prepare for this challenge during practicum, a preceding course with accompanying fieldwork requires teacher candidates to identify learning goals and assessment strategies, plan, lead a learning experience, collect assessment data, and then return for follow up lessons to address the misconceptions identified through the learning experience. These approaches make learning goals transparent and ensure that learners receive substantial, regular, timely, specific, meaningful feedback to improve their learning on an ongoing basis. When instruction and assessment work seamlessly together, the process enables

students to think deeply to understand next steps and to become increasingly self-directed in their learning. Recent studies note the strength in providing an articulated and purposeful design approach that is embedded with clear formative and summative assessment practices throughout (e.g., Assessment Reform Group, 2006; Black & Wiliam, 1998; Friesen, 2009, 2011; Friesen & Lock, 2010; Goodrich, 1999; Hattie, 2009, 2012; Wiliam, 2011).

The work from the learning sciences sets very high standards for teachers. As educators shift from a transmission model of education to one where teachers demonstrate adaptive expertise, teachers are required to know their students well and "seek evidence of successes and gaps" (Hattie, 2009, p. 261) in their students' learning. As teacher educators, assessing our teacher candidates according to our outcomes points out some gaps and challenging areas. For example, we ask them to *use assessments to identify learner needs and adjust instruction including varied ways to address misunderstandings*. Can we claim that we are also using our assessments to address their misunderstandings? MRU's practicum placements in cohorts, including weekly seminars with practicum supervisors, provide the opportunity for "just-in-time" feedback that seems especially important for achieving this lofty goal.

Capacity Four: Fostering Supportive Learning Relationships

Essential teaching Capacity Four *fosters supportive learning relationships*, which involve teaching practices that contribute to a variety of interdependent and supportive learning relationships. As students participate in a variety of supportive relationships in caring learning environments that encourage risk-taking and building trust, students' confidence in themselves as learners grows. In such teaching and learning contexts, diversity in a student population becomes something that is welcomed, appreciated, and explored.

In addition to pedagogical relationships (teacher and student), peer relationships and community relationships (students with others inside and outside of the school) are important aspects of supportive learning environments. An extensive body of research underlines the importance of supportive learning relationships (e.g., Alberta Teachers' Association, 2003; Clifford & Friesen, 1993; Engle & Conant, 2002; Friesen & Lock, 2010; Gilbert, 2005; Hattie, 2009, 2012; National Research Council & Institute of Medicine, 2003; Newmann, Wehlage, & Lamborn, 1992).

Evidence of teaching practice reflecting this capacity can include, but is not limited to:

- fostering productive relationships with and among students, parents, colleagues, and people outside the school;
- cultivating meaningful relationships between students and the subject disciplines they are learning;
- nurturing relationships of stewardship between students and the environment;
- creating collaborative learning environments that encourage risk-taking and trust; and
- welcoming, appreciating, and exploring diversity in a student population.

Cultivating the Capacity to Foster Supportive Learning Relationships

With the increasing complexity of the students that teacher candidates will teach, greater attention must be provided to considering the political, social, cultural, and economic factors that inform and impact the relationships that we cultivate with our students, parents, and communities. It can be uncomfortable for teacher candidates to acknowledge their implicit biases and assumptions, yet it is one of the crucial aspects of building teaching capacity in order to engage with the students and communities therein. To this end, we have reconceptualized many of the ways in which the Foundations of Education

courses bring to the forefront how these broader socio-political issues are relevant for teacher candidates in their classrooms and professional communities.

Our course redesign has shifted attention to the ways in which educators may unknowingly create forms of prejudice. The culminating diversity project requires teacher candidates to reflect on one of their biases and to investigate how they would address the bias as they enter the teaching profession. For example, one teacher candidate noted that she felt that no drama program could ever be taught well in a rural setting. The task then for this teacher candidate, was to go to a rural setting, and consider how drama could be taught well. After spending two weeks at the Rosebud Theatre in southern rural Alberta, she came to recognize how she had developed this bias and was able to take steps to overcome it. In other cases, teacher candidates have come to recognize their biases against Indigenous peoples, immigrant students, working class students, and have worked through these with the help of attentive and empathic WSE instructors.

This first year WSE course provides a foundation for when teacher candidates enter Year 2, and must more deeply consider how the education system, operating under a colonial agenda, has failed the Indigenous people. Within the First Nations, Metis, and Inuit Educational Leadership course, teacher candidates deepen their learning of systemic discrimination that was introduced in the diversity course, and become more aware of their own role as future educators in righting the wrongs of the past. By listening to Indigenous stories, perspectives, and a side of history seldom told, teacher candidates come to understand the ways in which a colonial past is deeply implicated in contemporary issues, such as intergenerational trauma, significant and embedded disconnects among families and communities, and racism within broader society, amongst a long list of social ills. Teacher candidates are able to better understand, empathize, and consider ways in which they may work to rebuild and cultivate the trust that has been lost. Further, Indigenous ways of knowing are emerging as “innovations” in education. Our

programs extend these perspectives to a deeper understanding of oral traditions, place-based education, and holistic conceptions of learning. Importantly, teacher candidates are challenged to examine their own position within Canadian society and understand how their role as teachers is integral to the broader project of reconciliation.

In both the diversity and Indigenous courses at WSE, teacher candidates explore the roots of challenging behaviour through targeted analysis of their observations in schools. It is all too easy to blame the children for their apparent disengagement, but interpreting scenarios through the lens of learning and diversity theories sheds light on the complexity of children's actions and the subcultures of classrooms. Knowing that learning requires risk taking, our teacher candidates are challenged to identify those factors that may limit children's willingness to risk so that they might create learning environments that are safe and genuinely collaborative.

One of the MRU program outcomes requires teacher candidates to *create a respectful and ethical learning community that encourages learners to take risks, build trust, embrace diversity, and increase self-confidence*. While the foundations courses persuade teacher candidates of the importance of this outcome, practicum provokes them to achieve this in the everyday life of the classroom, with all its interpersonal complexity. Teacher candidates regularly describe their efforts to engage learners who seem to lack confidence and the guidance from mentors and faculty supervisors who provide strategies for reaching these learners.

Capacity Five: Collaborating to Enhance Teaching and Learning

Collaborating to enhance student and teacher learning is essential Capacity Five. Effective teachers improve their professional practice in the company of their peers. As collaborative professionals, effective teachers engage with students, teacher colleagues, educational leaders, parents,

professionals from other fields, community members, and colleagues in the collective leadership of the school. Frequent professional conversations through networked or school based communities of inquiry, access to each other's classrooms, and collaborative planning are effective professional learning practices, well supported by the research (e.g., Friesen, 2011; Friesen & Lock, 2010; Friesen & Lock; Hattie 2009, 2012; Timperley, 2008, 2011; Willms, Friesen, & Milton, 2009).

Evidence of teaching practice that demonstrates this capacity can include, but is not limited to:

- collaborating through shared planning and co-teaching;
- engaging with colleagues, parent and community members;
- participating in professional learning and in communities of practice;
- contributing to the professional learning of peers;
- relating with peers through networked and school-based professional dialogue; and
- inviting feedback on teaching from colleagues and educational leaders.

Cultivating the Capacity to Collaborate to Enhance Teaching and Learning

Tremendous focus and attention has been given to cultivating the notion of a teacher as professional. If we start from the philosophical premise that teaching is a profession, then there is a requisite obligation and responsibility of the teacher both individually and collectively. This fundamental premise requires then that teacher education programs will not simply provide the toolkits for lesson plans, classroom management, and the answers for how to proceed. Rather, the understanding is that teacher candidates must understand the rationale, the implementation, and the evaluation for *why* and *how* they plan to create supportive, engaging learning environments. It further requires an attentiveness to understanding the children themselves, their diverse learning needs, and the contexts from which they come. In doing this well, there is an expectation that students and teachers will

collaboratively design the essential questions that govern their learnings. Teachers as part of the broader profession must draw upon each other's expertise, understanding how the disciplinary topics come to life in real world issues. This deliberative, collaborative, and purposeful sharing extends among students, staff, and, arguably most importantly, the broader community.

At MRU, first year educational foundations courses include a field experience and a school-based seminar. Aligning with principles of place-based education, we believe the quality and tenor of the seminars change because they occur in schools; teacher candidates are more aware of their responsibilities as aspiring professionals in this context. Faculty supervisors lead weekly seminars during practicum, an opportunity that is enabled by cohort placements. These seminar groups play a powerful role in the professional development of these teacher candidates who are provoked to interpret their practice through the lens of theory in the weekly articles and the insights of their peers. Data emerging from the OECD Teaching and Learning International Survey (Schleicher, 2015) confirms that such professional learning communities are critical for teachers to develop confidence in their abilities and to foster greater innovation.

In each program, teacher candidates are required to showcase their projects and research to the broader profession. One way we achieve this is through a public research showcase of their design projects. This provides an opportunity for teacher candidates to receive constructive feedback from peers, colleagues, and the broader educational community. In WSE, teacher candidates are encouraged to publish their findings with supervisors.

In a similar vein, a capstone course at MRU requires teacher candidates to engage in a semester long "inquiry into inquiry," which was described in our earlier discussion of Capacity One. During practicum, they engage their students in a series of rich learning tasks animated by an inquiry question and carefully assess student learning. A showcase including external guests challenges them to articulate

their understanding of inquiry and provides a powerful culmination to the entire degree. The capstone course also includes the final "chapter" of a web-based professional learning plan produced throughout the degree; this provides a launch for subsequent documentation and reflection on professional growth throughout their careers.

Concluding Thoughts

These five essential teaching capacities reflect recent research on the importance of learning environments that view learners as central participants, recognize that learning is social in nature, and require active engagement on the part of the learner. Such environments engage both the emotional and cognitive dimensions of learning to sponsor deep conceptual understanding such that each learner is sufficiently challenged and supported to reach just above their existing level and capacity. Assessment and instruction are integrally embedded throughout the program to ensure that learning goals are transparent and learners receive regular, timely, specific, and meaningful feedback to improve and support learning.

The capacities and supporting research call upon teachers to work with colleagues to design learning environments that deeply engage students in meaningful learning tasks. Teachers support student understanding through a variety of reciprocal approaches, including formative assessment as a seamless part of the learning process. Effective teaching and learning are founded on supportive relationships and collaborative approaches that contribute to social cohesion and instil lifelong intellectual curiosity.

Lortie's (1975) seminal research described teacher education as largely ineffectual because prospective teachers are influenced more by their previous 12 years as schoolchildren—their "apprenticeship of observation"—than by their university education. In order to transform the values

that influence teachers' pedagogical decisions, they need more than knowledge and skills, but rather experiences that shape their values and help them to catch a vision for inspirational education. The five areas of teacher capacity are more than just knowledge and skills. Each capacity is an area of teaching expertise that involves the ability to meet complex demands, by drawing on and mobilizing psychosocial resources (including skills and attitudes) in a particular context. Capacities involve a mobilization of cognitive and practical skills, creative abilities, and other psychosocial resources, such as attitudes, motivation, and values (OECD, 2005, p. 4). We argue that the transformative experiences described in this document support not only the knowledge and skills but also the values for effective practice.

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Chapter 05: A Framework for Teaching Professionalism in a Teacher Education Program

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Abstract

In the past few decades, research has consistently shown that teacher candidates enter teacher education programs with fairly ingrained but varied preconceptions concerning their identities as teaching professionals, as well as a great deal of capacities already in place for the profession (Ezer, Gilat, & Sagee, 2010; Hollingsworth, 1989; Pajares, 1992). For this reason, most teacher education programs put a considerable effort into identifying essential capacities that new teachers should possess, and then striving to cultivate these within their students during their campus-based and field components (Fuller, Goodwyn, & Francis-Brophy, 2013; Weinstein, 1989; Wideen, Mayer-Smith, & Moon, 1998). This chapter will examine one case study, specifically focusing on the crossroads of influence on a teacher education program, as it develops and cultivates essential capacities for "professionalism in teaching" for new teachers. The perspectives from two stakeholder groups within the program were taken into account. For a classroom perspective, we drew on individual interviews with 12 associate teachers and for the campus perspective, two faculty members and an associate dean. The results and discussion are presented using a teaching professionalism framework adapted from Cruess and Cruess (2006, 2012).

A Framework for Teaching Professionalism in a Teacher Education Program

In the past few decades, research has consistently shown that teacher candidates enter teacher education programs with fairly ingrained preconceptions concerning their identities as teaching professionals, as well as a great deal of capacities already in place for the profession (Ezer, Gilat, & Sagee, 2010; Hollingsworth, 1989; Pajares, 1992). However, it has also been shown that this varies greatly from candidate to candidate—some showing advanced abilities in one area and little in others (Hong, 2010). For this reason, most teacher education programs put considerable effort into identifying essential capacities that new teachers should possess, and then striving to cultivate these within their students during their campus-based and field components (Fuller, Goodwyn, & Francis-Brophy, 2013; Weinstein, 1989; Wideen, Mayer-Smith, & Moon, 1998). At the same time that programs endeavour to have a positive effect on their teacher candidates' learning and development, these students' prior experiences also exert a great influence on a program, compelling teacher preparation programs to explicitly include things that were once left implicit—such as teaching professionalism. This chapter will examine one case study, specifically focusing on the crossroads of influence on a teacher education program, as it develops and cultivates essential capacities for "professionalism in teaching" for new teachers.

The teacher preparation program discussed in this study is located in Ontario. Similar to all teacher preparation programs in the province, the current teacher preparation program graduated its final 2-semester bachelor of education cohort in June 2015. The discussion in this chapter reflects on past practices in the 1-year program and the potential that a revised 4-semester program could have on enhancing professionalism opportunities.

Background

Education and teacher training are a provincial responsibility in Ontario. Teacher education institutions, though publicly funded, retain some autonomy in determining curricular and structural elements unique to each university context. The Ontario College of Teachers, a self-regulatory body that licenses and governs the teaching profession, accredits such institutions according to a set of program standards. Nipissing University offers two face-to-face delivery modes for the bachelor of education degree program: the 5-year concurrent (embedded) and the 1-year consecutive (post-degree). Both degree routes involve alternating periods of on-campus course work and practicum blocks. Upon entry into either program, teacher candidates declare one of the following combinations of teaching divisions as their area of specialty: primary/junior (Grades K–6), junior/intermediate (Grades 4–10), or intermediate/senior (Grades 7–12). At the conclusion of each program, teacher candidates will have accumulated a minimum of 12 weeks of teaching experience in publicly funded schools (including experience in both of their chosen divisions), and 30–33 credits of course work covering educational theory, content knowledge, pedagogical knowledge, specific subject matter knowledge, and educational foundations (e.g., legal, social, cultural).

Nipissing University collaborates with 52 provincial school boards to establish placements for teacher candidates. In some cases a board-appointed contact sources and matches associate teachers with teacher candidates. In other cases the university practicum officer works directly with principals and schools to establish the placements. Teacher candidates are therefore able to select boards in their home communities, but the matching process is entirely out of their control to ensure the practicum experience is as authentic as possible. Though teacher candidates may return to an elementary or secondary school they may have attended, they would not be placed with a relative or close family friend. In the

consecutive program, each teacher candidate is assigned at minimum two separate placements, one in each division, in order to meet Ontario College of Teachers (OCT) certification requirements.

As with most other institutions, Nipissing relies heavily on associate teachers to provide guidance, mentorship, and, ultimately, an overall rating of practicum achievement for each teacher candidate. While no additional training is offered by the school board, the federation(s) (teachers' unions), or the university for their role, associate teachers usually volunteer for the position or are recommended by the principal. A faculty advisor, who is external to the university, and often a retired principal or supervisory officer from one of the boards, also offers each teacher candidate support and an evaluation during one school visit.

Provincial Legal Footing of the Term *Professionalism*

In Ontario, the concept of "the teaching profession" has evolved over the past several decades. As reflected in the literature, the concept of professionalism process continues to be a debated topic (Gidney & Millar, 1994, 2012; Hargreaves & Fullan, 2012). At certain times in our history, the term has been largely interchangeable with *job* and at other times associated with a *calling*. Sometimes, a teacher has been likened to other professionals, such as nurses or architects. At the same time, being tied to a federation or union has designated the educator under the category of *skilled labourer*. In the end, it would be fair to say that teachers are in a rather ambivalent state in regards to the term *professional*. This is not aided by the wording of a great deal of provincial legislation related to education.

The Ontario Education Act, considered the basis of the school system in Ontario, deals with the term professionalism with rather guarded words. It does not actually define it in any explicit sense, and connects it to teaching using only oblique allusions. Of the more than two dozen references made to the word in the most recent iteration of the act, the term "professional" is almost always linked with either

“training” or “development” (Education Act, 1990, Sec. 8[1]14). Here, the implication is that teaching *is* a profession due to the fact that teachers are engaged in the process of developing that profession. This is dealt with pragmatically, only discussing the ministry’s obligation to provide programs and ear-marked days that further this “professional development” (PD) (Education Act, 1990, Sec 8[1]22(b); 28; 28(a); 6.2; 7.1; [5]; 259[1]; [5]; 259.1[1]; [5]). It states that teachers are allowed the freedom to participate in these PD activity days, and that teachers themselves are allowed to organize themselves for the purpose of conducting professional development conferences and seminars (Education Act, 1990, c. E.2, Sec. 264 [3]).

In discussing the recent addition of the New Teacher Induction Program (NTIP), the act also refers to teachers who are “new to the profession,” thereby acknowledging that teaching is, indeed, a profession (276.2[1]). As well, the act outlines that for new teachers to enter the profession; they must successfully complete this NTIP, thereby establishing certain criteria for a professional. As well, in section 277.14 of the act, there is reference to the Teacher Performance Appraisal as a means to promote professional growth (2001, c24, s.4). This indicates that once a teacher enters the *teaching profession*, it is not simply a lifetime membership into a club—continued growth is expected to be regarded as a professional.

The definition of professionalism is vague in the Ontario Education Act. However, the ministry does view teachers as a distinct group of professionals, who gain this position through successful completion of the bachelor of education program, and maintain the position through ongoing professional growth. Two accompanying pieces of legislation expand on this term, somewhat. First, the *Teaching Profession Act* (1990, c. T.2.) endeavours to tie the term to membership in the provincial teachers’ federation. Specifically, this act states that the purpose of the federation is “to raise the status of the teaching profession” (3.b). It also concludes that students should be considered associate members

of this profession, as they are involved in "a school or faculty of education that provides for the professional education of teachers pursuant to an agreement under clause 14[1] (b) of the *Education Act*. 2000, c. 12, s. 4[1]" (Section 3, 2 [1 & 2]). By implication, again, it is indicating that to become a professional, a teacher must attend and successfully complete a university program as a standard to enter the profession.

How a teacher must behave to remain as a professional is articulated in the *Ontario College of Teachers Act* (1996, S.O. 1996, c. 12) and is perhaps the most enlightened of legislation in this area. Like the other acts, it acknowledges teaching as a profession. However, it goes into much more detail about how the college controls this profession. It explicitly states that the job of the Ontario College of Teachers (OCT) is to "regulate the profession of teaching and to govern its members" (3[1]1). With no wavering, it maintains that teaching is a profession, and that it has a distinct membership. It goes on to state that it is the power of the OCT to develop, establish, and maintain the qualifications that a person must maintain for membership in the college (and thereby the profession) (2). It also professes that it may accredit the university teacher education programs (mentioned above) that allow teachers into the profession (3, 4). Once a person has passed the teacher education program, he or she may then become a member of the teaching profession by virtue of acceptance into the college. In other words, according to this act, the teaching profession and membership in the Ontario College of Teachers are synonymous.

Like the other two acts, the *Ontario College of Teachers Act* (1996) also indicates that the profession is not a lifetime membership or a degree that cannot be stripped. Certain standards must be maintained or the college may then amend, suspend, cancel, revoke, and reinstate certificates of qualification and registration (5). Rather than remaining vaguely worded, as in the other acts, however, the Ontario College of Teachers Act is quite clear as to what would indicate a loss of professional status—namely, a contravention of professional and ethical standards that have been established and

enforced by the college (7). The act goes as far as indicating that members who have had their qualifications revoked continue to be subject to the jurisdiction of the college in areas of misconduct (5). Professional misconduct, which would warrant removal from the profession, would include lapses of ethics (e.g., sexual, moral, personal habits such as drug use, the corruption of youth, etc.).

The role of the teacher has changed significantly in its connection to professionalism. Specifically, this has become less and less vaguely defined with very explicit statements showing what is a profession, what characteristics make a professional, and how someone may lose their professional status. Prior to the presentation of the stakeholder perspectives and discussion, we offer insight into teacher professionalism from the literature and propose a framework for analysis.

Method

Using a case study design allowed us the tools to explore the complex professionalism phenomenon within its context. Miles and Huberman (1994) define case as, "a phenomenon of some sort occurring in a bounded context," and the case is, "in effect, your unit of analysis" (p. 25). The teacher preparation program is the unit of analysis in this project. This type of case study is explanatory in nature, as the explanations link the program's implementation with the program's effects (Yin, 2003). Stake (1995) and Yin (2003, 2014) propose that the case study method ensures the phenomenon is well explored and the essence of the experiences are revealed and dependent on one's perspective. Case study research permits the use of multiple data sources, which enhances the data's credibility (Yin, 2003). Through the personal narratives or stories from the participants (i.e., interviews), we were able to understand the participants' perspectives (Lather, 1992). The purpose of the study was to explore the issues, beliefs, and experiences related to teaching and fostering professionalism in a teacher preparation program.

Here, perspectives from two stakeholder groups within the program were taken into account. For a classroom perspective, we drew on individual interviews (Kvale, 1996; Seidman, 2006, 2012) with 12 associate teachers from elementary and secondary publicly funded schools in the northern, southern, eastern, and western regions of Ontario. For the campus perspective, two faculty members and an associate dean (the chapter's authors), discuss education program policy and practices that have been informed by previous and current teacher candidates, specifically related to professionalism. Methods of analysis for the project included three streams of activity identified by Miles and Huberman (1994): data reduction, data display, and conclusion-drawing/verification. Deriving categories and themes elicited conclusions addressing the questions with support from the various data displays. Verification involved constant comparison of data from the various sources (interviews, reflections, field notes) to test the trustworthiness of the results (Glaser & Strauss, 1967; Handsfield, 2006).

Teaching Professionalism

The *teaching* of professionalism in this program takes many forms. As Maxwell (2015) has noted, professional vocabulary is ubiquitous in education. Terms such as professional development days, professional standards, professional judgment, professional practice, etc., serve to remind us that professionalism is at the very heart of teaching. However, the ways in which it is presented, conceptualized, and emphasized differs quite significantly across the program.

All those considered "teacher educators"—university faculty, university administration, associate teachers, faculty advisors, and the federations—present their respective definitions of professionalism. The repertoires of professional knowledge, attitudes, and values affect the character of each group of teacher educators' practices (Murray, 2014). For example, associate teachers' conceptions of professionalism provide authentic interpretations through a practical lens. University faculty members,

who may or may not have had classroom experience, base conversations of professionalism on research-supported theoretical conceptions. Faculty advisors, many of whom have been in positions involving the hiring of teachers, offer yet another perspective on professionalism. Research related to teacher educators' professionalism is rather scant (Maxwell, 2015), focusing largely on knowledge base and professional attributes rather than how professionalism is used to prepare pre-service teachers. Teaching professionalism is both an explicit and implicit enterprise through in class instruction, practicum experiences, and reflection (Coulehan, 2005; Huddle, 2005; Swick, 2000). Providing teacher candidates with opportunities to develop both theoretical knowledge and experiential learning allows them to internalize the ethical and moral values inherent in the field, and to understand the nature of professionalism as it relates to their role in education.

A comprehensive teaching framework for understanding professionalism in teaching has not yet been developed (Beijaard, Meijer, & Verloop, 2004; Hong, 2010). Consequently, we adapted Cruess and Cruess' (2006, 2012) medical profession framework for our discussion. The ever-changing field of medicine offers much more formalized structures to teach professionalism in medical schools. Based on situated learning theory, Maudsley and Strivens (2004) propose that professional programs should be designed in such a way that learning is embedded in purposeful and authentic activities to transform knowledge from the abstract to applicable forms. These authors posit that since the (medical) profession is a socially constructed network underpinned by common values and beliefs, those wishing to join the network are therefore invested and engaged in the learning process. Teaching and medicine share certain attributes (Maxwell, 2015). Though teaching does not *cure* anything, it is guided by a set of values, behaviours, and relationships that supports the trust that the public has in teachers (Cruess & Cruess, 2012).

Adapted from Cruess and Cruess (2006, 2012), the following principles act as a framework for our discussion of professionalism and how it is presented and taught at Nipissing University: the cognitive base, experiential learning and self-reflection, role modelling, evaluation, and the environment. Each of these principles will be discussed in the context of our teacher education program.

The Cognitive Base

Teacher candidates engage in a broad range of theory-based courses that serve as a foundation for their education. One such course, Education and Schooling, is designed to enhance knowledge, understanding, and skill in the philosophical, historical, legal, and social context of schooling and education. Intended to begin the development of a teacher identity, this course explicitly addresses elements of the Education Act, Ontario College of Teacher standards of practice, and other boundaries of professionalism inherent in the field. Another course, Language Arts, addresses not just the Ontario curriculum but the forms of communication expected of a teacher-in-training. Candidates are encouraged to enhance their oral and written language forms as a starting point for their professional journey. Preparing candidates for culturally diverse classrooms and learners with special needs is emphasized through Educational Psychology and Special Education. The Curriculum Methods course consists of three key components: instructional strategies (planning, implementing, evaluating lessons), classroom management strategies, and information technology. Rich opportunities exist to address areas of professionalism such as managing social interactions in the classrooms, appropriate social media use (for teachers and students), and the depth of planning required for effective lessons. Each of the other courses relate to specific curricular areas of study, including health and physical education, visual arts, music education, social studies, science education, and mathematics. The candidates in the intermediate

and senior divisions would take additional training in their subjects of specialization (based on their undergraduate major) to address content knowledge specific to these subjects.

Experiential Learning and Self-Reflection

Practicum represents the most important contribution to the development of teachers in training (Desbiens, Lepage, Gervais, & Correa-Molina, 2015). Teacher candidates engage in 12 weeks of practicum within publicly funded schools across the province, six weeks in each of two placements. Their introduction to the classroom environment begins with observation, and slowly transitions to a more active role in teaching lessons. In some cases, teacher candidates may team-teach with their associate teacher, or teach just a portion of a lesson before taking on an entire lesson on their own. By the end of the 12 weeks, teacher candidates assume almost full control of their placement classroom, taking responsibility for all teaching and non-teaching tasks (e.g., transitions, supervisions, etc.). Planning lessons is a major focus for teacher candidates. Following each lesson, candidates must reflect on their professional practice by answering the following question: What do I need to do to become more effective as a teacher in supporting student learning? Teacher candidates must have an opportunity to experience and reflect on their learning, with special attention to the knowledge and nature of professionalism. The associate teacher is considered a major constituent in the preparation of teacher candidates by providing meaningful teacher training experiences (Clarke et al., 2012; Gardner, 2006; Pellet, Stayve, & Pellet, 1999). Associate teachers are encouraged to plan and debrief lessons with teacher candidates on a regular basis. Through this mentorship, it is hoped that the teacher candidate will grow through regular feedback and opportunities to move beyond their comfort zones. Faculty advisors also play a role in supporting teacher candidates while on practicum. Though their role is much less hands-on than that of the associate teacher, the faculty advisor is available for consultation at any point.

Faculty advisors are asked to engage the teacher candidate in reflecting openly about their lessons, and they offer advice and feedback to improve practice.

Role Modelling

Role modelling is often seen as a most powerful instructor, whether purposeful or unintended, positive or negative (Desbiens et al., 2015). Associate teachers and faculty should be explicit about what they are modelling (Cruess & Cruess, 2006). On campus, during class, instructors model and share their teaching expertise and provide teacher candidates a space to practice their capacities. In the classrooms, the associate teachers consistently noted modelling and sharing teaching practices as required skills for effective mentorship of their protégés—teacher candidates. Teacher candidates are required to observe in host classrooms before they begin to teach. During such observations, the associate teacher conducts his or her regular classroom duties (instructional, managerial, administrative, etc.) and the teacher candidate is asked to take notes, assist as appropriate, and, through modelling, gain a sense of the daily operation of that specific classroom. Through regular and ongoing debriefing sessions, the associate teacher may identify and justify specific teacher behaviours or actions taken during the observation, thus emphasizing the importance of role modelling. Whether explicit or implicit, intended or unintended, role modelling remains a significant factor in this teacher education program.

Evaluation

Both the cognitive and the professional attributes need to be evaluated (Cruess & Cruess, 2006, 2012). As outlined in the practicum handbook, which also serves as the course syllabus, capacities for teacher candidates are identified and measured using overall expectations and were developed using the Ontario College of Teachers standards and ethical practices for the teaching profession, Ministry of

Education policy documents, and literature related to teaching practice. For example, the progress report categories are professional skills and attitudes (responsibility, organization, communication, collaboration, initiative, self-regulation). Associate teachers are required to score candidates' professional attitude. Similarly, for academic courses, campus instructors' use learning outcomes in the development and evaluation of pedagogical content related to professionalism. Demonstrating competence is high stakes for the teacher candidates. The courses and practicum are for credit—failure in one component has the potential to translate into failure in the entire program.

The Environment

The environment includes three components: formal (e.g., official syllabus), informal (e.g., unplanned teaching in classroom), and hidden curricula (e.g., structure and culture of the institution—promotion of policies and activities) (Hafferty & Franks, 1994; Hafferty, 1998). For example, as a hidden curriculum, the faculty of education promotes professionalism by offering teacher candidates opportunities to participate in extra-curricular activities (e.g., volunteering for community service-learning). A recent initiative in which all teacher candidates participate is a Professional Week. Classes are suspended for a week to allow for service providers (i.e., Ontario College of Teachers, Teacher Federations) to meet with the candidates, and faculty members volunteer to deliver workshops on a range of topics related to teaching. This institution has a rich history in teacher education, with many faculty members possessing classroom experience as teachers. Professors are therefore closely aligned with the standards of practice, embedding the values of professionalism in their teaching and every day interactions with candidates. A culture of teaching excellence has therefore positively influenced all three components of the learning environment.

Themes Emerging From the Framework

The results from this study settled into three main themes: deportment, communication, and ethical responsibility. The discussion from the framework will be embedded within the overarching themes.

Deportment

One of the fundamental aspects of professionalism mentioned in the many codes of conduct put forward by federations, colleges of teachers, and teacher education programs is the expectation that teachers build a positive classroom environment conducive not only to learning, but also to the development of mature students. Implicit in this message is the anticipation that teachers model appropriate presentation in various contexts, including professional dress. Remaining cognizant of their role within the classroom and the community, teachers are expected to dress and behave in an appropriate manner for the situation or context. This link between education and modelling is, in fact, entrenched within the Ontario Education Act using the phrasing "inculcation through precept and example." And this connection has not been lost on scholarship in the area: "Dress is one form of communication that overtly provides information about appropriate dispositions and behaviour at school and work" (Freeburg & Workman, 2010, p. 29). So important to students' perceptions, one teacher commented that if she even changed the shade of her nail polish, students were bound to notice (Weber & Mitchell, 1995).

What a teacher wears has been an ongoing issue for generations, but became especially heated after the landmark American cases of *Finot v. Pasadena City Board of Education* (1967) which denied a board's right to disallow a teacher with a beard to enter a classroom, and of *Tinker v. Des Moines Independent Community School District* (1969) decision which denied a school board's right to punish

students for not wearing *appropriate* clothing on school premises. For the decade after these decisions, courts expanded their protection of teachers' decisions to ignore school dress and grooming codes, citing First Amendment freedom of expression rights. This did not, of course, signal the beginning of a complete libertarian society, as school authorities still maintained the right to limit a teacher's right of expression when it could be shown that such activity disrupts or threatens to disrupt discipline and order within the classroom (Hudgins, 1971; Sponseller, 1976). However, it does indicate that, by the 1980s, rather than just following orders, a teacher had to start using his or her own *professional* discretion to a larger extent depending on the situation (Ceccoli, 1980; Lemley, 1980). This lack of clarity persists, which makes it all the more important for teachers to see themselves as professionals, capable of making effective judgements. With the knowledge that teacher education programs play a major role in preparing students for the transition from student teacher, the concept of deportment is addressed in the *cognitive base*, *role modelling*, and *evaluation* components of our professionalism framework.

Cognitive base. The teacher candidates are introduced to the notion of professionalism in their preparation for their field experience. The associate dean explicitly reviews the expectations for professional dress and standards of behaviour. For example, on the 1st day of practicum, candidates are encouraged to dress in business casual. The thought behind this comes from the knowledge that teacher candidates will be sent into an unknown school environment—it would be best for them to achieve a balance of perceptions of both students and administrators. Too formal will send a message to students that the candidate may be too rigid (especially if the supervising teacher is not dressed that way). Alternatively, a too casual look may not sit well with the administration: Lang (1986), and Simmons (1996) a decade later, both felt that the administrators of any school would hold a strong belief that the way teachers dress is related to school success and that they are influenced by a teaching candidate's dress in making hiring decisions. For this reason, business casual is the best approach for the 1st day

until the teacher candidate has assessed the informal dress-code of the environment. A gradual release of responsibility approach is used to address the issue of professional dress. We start with a direct approach to what teacher candidates should wear for the 1st day. Teacher candidates are then encouraged to use professional judgment for appropriate attire on subsequent days. Coinciding with this discussion of dress, the notion of appropriate professional conduct for the context is discussed. Candidates are expected to present themselves by using gender inclusive language, avoiding the use of slang, and demonstrating respect for students, colleagues, and parents regardless of their cultural, social, or sexual orientation.

Role modelling. With full knowledge that there is a wide range of definitions of *professional dress* within the school system, and that little can be done to directly disallow a teacher candidate from wearing just about any attire they choose, the program's main means of influence comes through role modelling, on campus and on placement. Campus instructors, including the authors, speak specifically to the importance of professional dress. Associate teachers interviewed reported they had to speak directly to some of their candidates about professional dress. Rene, a secondary school associate teacher, suggested teacher preparation programs make candidates more aware of professional standards and expectations: "Even dress code and behaviour with students because a lot of these candidates are coming to us are not that far removed from Grade 12." It is important that teacher candidates be encouraged to think about what they wear, considering the practicalities of first impressions. However, critically thinking about attire should develop over time.

On campus, the issue of professional dress is a topic of much discussion after the candidates' first placement. Some candidates are placed with teachers who dress casually and directly or indirectly encourage candidates to dress in similar casual attire. The federations' position on dress supports teachers' claim to dress as they feel appropriate.

In fact, the discussion taking place is not dissimilar from recent findings: that the clothing teachers wear is a balancing act between individual and societal pressures. Freeburg and Workman (2010) examined twenty-nine newspaper articles on teacher dress: For example, it found that this debate was rather polarized between those with opinions on a school dress code policy for teachers—proponents (most frequently school boards and administrators), opponents (most frequently teachers and their unions), or unspecified (most frequently school boards and administrators). Time is given in campus classes to discuss this situation as part of the larger issue of professionalism and its boundaries.

Evaluation. This component of the framework allows for associate teachers to score teacher candidates' professional skills and attitudes. Along with candidates' skill in instructional design, assessment, and the delivery of the lesson, their professional teaching skills and deportment in and outside the classroom are evaluated. Inside the classroom the candidate is expected to maintain a climate of professional inquiry, equity, and support. Outside the classroom candidates are expected to exercise professional judgment and integrity by maintaining respect and confidence with education stakeholders. Much of this evaluation comes not from a strictly idealized version of how a teacher should dress but, rather, from how students and colleagues react to the demeanor their clothing presents.

In line with recent literature on the subject, evaluations of students' deportment have endeavoured to draw links between teacher dress and student decorum (Sternberg, 2003). Whereas a teacher candidate's desire to "blend in" fashion-wise shows a desire "to project a positive image in the community" (Freeburg et al., 2011), extreme casual and immodest dress (inappropriate and unprofessional dress) reflected role distance (Workman & Freeburg, 2010). Evaluation of dress, therefore, is not a stand-alone assessment but one with larger ramifications.

Communication

The learning environment within the teacher education program is dependent upon various forms of communication, within and amongst many different partners. For this discussion, we will focus upon the transmission of information for the purposes of conveying professionalism messages within the program structures as opposed to the further development of soft skills (oral or written language, non-verbal skills, etc.) related to the act of teaching. As with any other teacher preparation program, Nipissing University relies heavily on computer-mediated communication to keep its various groups and departments informed of policies and procedures related to the smooth operation of the teacher education program. Cruess and Cruess (2006) noted the importance of institutional support in establishing an educational environment that espouses professionalism. Upon entry into the program teacher candidates are assigned an institutional e-mail, and all formal communications (e.g., practicum office, faculty advisor, associate teacher, and professor) are sent through that medium. Practicum office communications, for example, are very carefully crafted to model appropriate professional language, and are usually reviewed and approved by the dean or associate dean. Teacher candidates are expected to monitor this e-mail regularly (and they are reminded regularly).

Cognitive base. Course syllabi are no longer provided in hard copy; teacher candidates must consult an electronic copy for course policies and procedures, timelines, and evaluation tasks. All courses are face-to-face, with some professors opting to supplement course lectures, discussions, and content with an online learning management system or a course website. The practicum office uses a variety of formats to disseminate critical information regarding teaching placements and the expectations of practicum. All teacher candidates must purchase the practicum handbook, which serves as the course syllabus for the practicum course. An electronic version of the handbook is also posted on

the website. The practicum office sends multiple e-mails, carefully timed, to emphasize specific aspects of the placement experience, which in many cases duplicates the contents of the handbook. Teacher candidates are expected to contact their associate teachers by e-mail and with a phone call follow-up prior to the start of the placement. It is hoped that early contact will encourage the development of a positive mentoring relationship. As observed by one of our associate teachers, "It goes back to those relationships again and establishing that very strong relationship at the beginning so that those courageous conversations are not as difficult and not coming across as negative, per se, but rather constructive criticism" (Drew).

Teacher candidates are asked to attend a series of practicum information sessions to reinforce and review professionalism in the teaching context. Such things as deportment and dress, arrival and departure times, confidentiality, and social media use are discussed prior to their first practicum experience. These large-group sessions, delivered by the associate dean, are intended to emphasize the importance of professionalism. One key message relates to heightening personal awareness of communication style and effectiveness, including non-verbal communication, the avoidance of slang, error-free written work, listening skills, and gender inclusive language use.

Teacher candidates are advised to frame conversations about students in such a way as to offer support or to problem solve rather than to offer judgment. The Ontario College of Teachers' (2012) professional advisory on the use of electronic communication and social media serves as a guiding document for teacher candidates' professional communication with students, offering specific boundaries and responsibilities even as associate members of the College. Teacher candidates also meet once with their faculty advisor (in small groups) prior to practicum. Subsequent communications between the teacher candidate and faculty advisor occur through e-mail, phone, or Skype conversations. Each teacher candidate is visited in the school once for a formal faculty advisor evaluation. The faculty

advisor role is also one of support, and sometimes this individual is called upon to mediate difficulties between the associate teacher and the teacher candidate. One of our associate teachers made this observation: “It was very easy to communicate with her (faculty advisor) about what was going on and the struggles that were happening. She was great in coming and scheduling promptly. . . . It was a good conversation we had after that lesson” (Kelly). The triad (associate teacher, teacher candidate, and faculty advisor) is only as effective as the degree of collaboration among members (Desbiens et al., 2015). Faculty advisors, hired by the university, are usually retired school board principals or supervisory officers. They meet with the associate dean and practicum office staff once per year to review policies and procedures related to practicum, and their role in supporting teacher candidates and associate teachers. The practicum office disseminates further reminders and support materials via e-mail at regular intervals throughout the year.

E-mail is a convenient medium for brief messages, but teacher candidates are often inundated with so many e-mails that key information may get lost or ignored. Additionally, because tone cannot be effectively transmitted through e-mail, many messages may be misinterpreted (Kruger, Epley, Parker, & Ng, 2005). With this in mind, the practicum office prepares and distributes messages to coincide with the teacher candidates’ need for the information.

Role modeling and experiential learning. The strength of the associate teacher–teacher candidate relationship can be a determining factor for a successful practicum (Broad & Tessaro, 2010). Our associate teachers consistently noted the importance of teacher candidates initiating contact. Rene commented, “I really like to first meet with them before they come into the classroom full time. That’s happening less and less because I’m noticing there’s less effort to communicate earlier than it used to be. If they initiate contact, perfect because then you can start establishing where I am and where the teacher candidate can jump in.”

Modelling is a powerful communication tool for associate teachers, which may in fact override theoretical foundations learned in the classroom (Cruess & Cruess, 2006; Desbiens et al., 2015). Whether explicit or implicit, teaching and learning strategies and classroom management styles already employed by the associate teacher provide a starting point from which teacher candidates can begin to shape their own strategies and styles. The provision of feedback is an expectation for all teacher candidates, and the form and frequency of the feedback varies with the associate teachers' dispositions, experience, and personal frame of reference. As a result, some forms of feedback relate more specifically to the easily definable technical elements of teaching (e.g., timing, use of resources, management), and other forms related to teacher affect (e.g., personality, enthusiasm, and communication). Many of our associate teachers acknowledge that some conversations are challenging: "I find it very difficult to provide feedback on problems that are more personal such as bad grammar" (Chris).

Environment. The practicum office provides all associate teachers with electronic copies of the practicum handbook (syllabus) and evaluations. The associate teacher's institutional contact is the faculty advisor. The practicum office becomes involved in situations in which the teacher candidate begins to experience difficulty, being called upon by either the faculty advisor or the associate teacher. Such communications are usually initiated by e-mail and often continued with phone conversations for the purposes of providing immediate and ongoing support for the teacher candidate.

With so many partners involved in the preparation of teachers, the challenge of a coherent approach to communicating professionalism remains. Teacher candidate professional identity is shaped by their experiences and their reflections on those experiences (Cruess & Cruess, 2012). It is up to the institution to provide an environment within which teacher candidates can internalize the standards to

which they will be held upon entering the teaching field. Through consistent and ongoing messaging in a variety of forms, such an environment can provide that opportunity.

Ethical Responsibility

As with deportment, teachers' ethical responsibility has been an important issue of unabated discussion for almost 50 years. Boon (2011) argues that an "ethics boom" since the 1970s has pushed for ethics training in teacher education programs as a replacement for its continual disappearance in tertiary institutes in the West. Recently, this conversation has turned to linking teacher beliefs with student attainment. Gore, Ladwig, Griffiths, and Amosa (2007), for example, found in a survey of 3,000 students that it was the approach with which teachers tackled their professional duties (an obligation to students' learning underscored by their commitment to social justice) that made a difference. They concluded that teachers' values and beliefs determine teacher quality. They maintain the necessity for ways to help teachers reflect upon their beliefs, and for teacher training and professional development programs to help this happen. Gore et al.'s study, of course, is no outlier, with many authors making similar assertions (Alexander, 2009; Nucci, Drill, Larson, & Browne, 2005; Revell & Arthur, 2007; Rowe, 2004; Westcombe-Down, 2009).

Until recently, however, much international lamentation has been made concerning the state of ethics in the university classroom. Campbell (2008) argues that while teaching training programs should be seen as, "the initial place to acquaint new teachers with the moral dimensions of their chosen profession" (p. 373), they have almost universally neglected the teaching of ethics. For this reason, scholars have made broad appeals for the introduction of moral philosophy courses in pre-service teacher training programs (Carr, 2003, 2006; Snook, 2003).

This situation has recently been challenged in Canada, at least. In a countrywide survey of teacher education programs, a team from the University of Quebec, Trois-Rivières, showed unexpectedly that there existed a strong desire for required ethics courses within pre-service institutions. Additionally, the survey demonstrated as well that this was not simply the view of teacher educators, but a common component of most academic calendars (Maxwell, Tremblay-Laprise, & Filion, 2015). However, this team also learned that when applied on an international scale, stand-alone courses could only be found in a quarter of teacher education programs (Maxwell et al., 2016).

Perhaps a clue for its prevalence in Canadian institutions may be found in the underlying provincial documents related to educational ethics. The Ontario College of Teachers, for example, identifies the traits of caring, respect, trust, and integrity as the standard for the teaching profession (OCT, 2012). As with Maxwell et al. (2016) these standards are then linked to the priority of improving student achievement (Ontario Ministry of Education, 2012). Teachers' primary professional objective, therefore, is the development of students' potential, while valuing the worth and dignity of all students. So important is this province-wide admonishment that the ethical responsibility theme is addressed in all the components of the framework. Not dissimilar to one created by Warnick and Silverman (2011), this framework is designed to *not* produce absolute answers, but to aid in a process of ethical decision-making. That being said, the intent of the framework is to help "respect student moral autonomy while resisting the slide into relativism" (p. 273).

Cognitive base. Although candidates engage in a range of theory-based courses that serve as a cognitive base, one course, Education and Schooling, is designed to explicitly address Ontario College of Teacher standards of practice, specifically ethical responsibility. The instructors begin the course with the standards of practice to ensure candidates have a cognitive base to the philosophical and practical boundaries and expectations of professional practice. From this base, however, the course then enters

into a wider discussion of ethical considerations by including case studies in relation to general philosophical treatises. As seen below, *reflective practice* becomes a key component of the framework, but this cannot be left solely to "on-the-job" ad hoc experiences. Without training to develop ethical considerations, studies have shown that teachers' interaction with students break down to the level of behaviour management; this tends to be unreflective and operating with only mechanistic, controlling aims in mind (Fiero Evans, 2005; Thornberg, 2008). It is a balancing act, however, as the instructor endeavours to guide students while not explicitly promoting any ideal "moral philosophical, moral psychological, or moral educational theories" (Curtis, 2010, p.114).

Experiential learning and self-reflection. While the candidates attend theory-based courses, they also engage in the theme of ethical responsibility in experiential learning and self-reflection through the practicum component of the program. While they have the opportunity to develop their skills in curriculum design, delivery, and assessment, each candidate is also required to reflect on their knowledge and application of ethical responsibility, as it relates to supporting student achievement. A wide spectrum of research on this subject uniformly concludes that such engagement in reflective practice is a mark of a quality teacher (Delpit, 2006; Recchia & Beck, 2014; Zwozdiak-Myers, 2012), for it is through this practice that educators may modify and polish their methods to aid student achievement.

Critical to professional development for candidates is descriptive feedback from their associate teacher. All the associate teachers interviewed provided a range of feedback throughout the placement. They were open to accepting various views and approaches from the teacher candidates, rather than being too dogmatic in their outlook. The associate teachers provided verbal and written feedback for the teacher candidates on their lessons. Most took notes throughout the lesson, some sitting and writing the notes, others making jot notes and completing more detailed feedback at a later time. One associate

teacher purchased a small booklet to record all her feedback and gave the book to the candidate at the end of the placement. Jamie described the process for providing feedback by asking "a lot of scaling questions to get a feel of how they thought lessons went and where I think lessons went and let's see if they match up." Most often the associate teachers and teacher candidates were in agreement about the lesson outcome. However, Alex stated, when there are differences in the level of success for a lesson, "if they think something went well and I think, 'that did not go so well,' then it's a longer conversation and it's more specific to their needs."

Role modelling. As noted above, Alex, an associate teacher, used the conversation of differing perceptions as an opportunity for growth. Similarly, the theme of ethical responsibility is embedded in the category of role modelling in the professionalism framework. Role modelling is an effective strategy to develop candidates' understanding of their ethical responsibility. Critical to the process is for associate teachers to be explicit with what they are modelling. In this way, instructors act as a bridge between the theory and practice of ethical responsibility. Of importance here is that candidates have grounding in what is acceptable ethical behaviour put forward by the various institutions to which they are subject. Davenport, Thompson, and Templeton (2015), for example, indicate that rather than being distressed about constricting codes of ethics, respondents to a survey concerning a state-wide educator preparation program actually had opposite feelings. Instead, the study found "a consensus among the participants regarding the inclusion of specific information about consequences for unethical behaviour and information regarding professional and ethical decision-making" (p. 82). The conclusion is that while there should be room for much variation, at the same time there should be some standards that are not just enforced but role modeled by all stakeholders within the program.

Evaluation. Evaluation of candidates' cognitive knowledge of their ethical responsibility is measured on campus and their practical application is scored by associate teachers on practicum. The

evaluation, developed using the Ontario College of Teachers standards and ethical practices for the teaching profession provides teacher preparation programs the standards of competence required for teachers. Maintaining the highest degree of ethical competence includes in and outside the classroom environment. The theme of ethical responsibility is evident in the environment component of the framework. It is important that teachers strive for the highest ethical conduct to maintain respect and confidence in the school community. As part of recent changes to the program, it has been suggested that the assessment format of the program should be in line with process as well as the product of ethical consideration. As suggested at numerous other programs (Brindley & Bowker, 2013; Hui & Grossman, 2011; Husebo, 2012), a culminating action research project has been recommended as a way to help candidates understand ethical issues as much as evaluating their knowledge.

Recommendations

There is agreement that professionalism is a critical component to teacher identity and the promotion of the teaching profession. Based on the findings from this study and the literature, we offer the following recommendations for teacher preparation programs.

Institution

The process of analyzing our teacher preparation program through the lens of the professionalism framework assisted us in understanding areas of strength and components that could be strengthened, related to teaching professionalism in our revised program. To begin, however, agreement on the definition of professionalism, specifically the set of characteristics and attributes, is necessary for all stakeholders involved in teacher education programs. Candidates should have an opportunity to develop a professional identity using the characteristics, traits, and skills to facilitate their teacher

identity. Professionalism needs to be taught explicitly and implicitly throughout the program and opportunities to reflect on these experiences in a safe and supportive learning environment. The first whole group lecture on campus should be on professionalism, thereby emphasizing the importance of the concept. During classroom learning, provide opportunities for small group discussions of case studies demonstrating exemplary professional behaviour. Following experiential learning provide candidates an opportunity to review narratives of the experience, on placement and on campus.

Practicum

To open the conversation between the associate teacher and teacher candidates, complete a profile sheet to introduce and open the conversation between the teacher candidate and the associate teacher prior to practicum. The profile includes the candidates' educational background, interests outside of teaching, and professional goals for the current practicum. Teacher preparation programs are encouraged to continue to develop new ways of communicating that resonate more effectively with teacher candidates, associate teachers, and faculty advisors (e.g., facebook page, video links embedded in brief e-mail messages). In alignment with Cruess and Cruess (2006), we recommend teacher preparation programs begin teaching professionalism explicitly, acknowledging there is a cognitive base to the concept followed by opportunities to internalize the concept through experiential learning.

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Chapter 06: Initial Teacher Environmental Education Capacities: What is the Role of Ontario's Faculties of Education?

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Abstract

International advice on what teachers—including Canadian teachers—should know, believe, and be able to do regarding environmental education (EE) were published as far back as 2005 in the guidelines and recommendations of the UNESCO Chair on Reorienting Teacher Education to Address Sustainability. In Ontario, Canada, this became manifest in one of the few Canadian provincial EE policy frameworks, *Acting Today, Shaping Tomorrow*. Though laudable, the framework provided minimal direction to faculties of education on the development of initial teacher environmental education (IT-EE) capacities. This chapter presents an argument for the development of IT-EE capacities, utilizing a generic model of IT capacity involving IT "experiences/natures" and "competencies." In particular, the chapter considers how IT-EE capacities may be described, identified, and cultivated within teacher education programs. It also explores how IT-EE capacity may influence IT-EE programs, and how coordinated efforts at two levels of action—at the faculty level and beyond the faculty—may help institutionalize IT-EE capacities.

Initial Teacher Environmental Education Capacities: What is the Role of Ontario's Faculties of Education?

During the Decade for Sustainable Education 2005–2014, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) called for a reorientation of teacher education to address sustainability (McKeown & Hopkins, 2005). According to UNESCO (2012):

> Sustainability is a paradigm for thinking about a future in which environmental, social and economic considerations are balanced in the pursuit of development and an improved quality of life. These three spheres—society, environment and economy—are intertwined. (p. 4)

The Ontario Ministry of Education (the "Ministry") responded with an environmental education[2] (EE) policy framework, *Acting Today, Shaping Tomorrow* (Ministry, 2009) that called for faculties of education to help prepare K–12 teachers for EE. The Ontario College of Teachers (the "College") also recognized the role faculties of education play in preparing initial teachers[3] (IT) to teach the Ontario curriculum, including EE. The theme of the Canadian Association for Teacher Education's (CATE) 2015 working conference, What Should Canada's Teachers Know? Teacher Capacities: Knowledge, Beliefs, and Skills, provided an opportunity for us to revisit issues related to these developments.

This chapter attempts to address three pertinent questions: (a) What IT-EE capacities should teacher education programs instill in initial teachers? (b) How are these IT-EE capacities identified and cultivated within such programs? (c) How do these capacities, developed by teachers during and after their teacher education program, potentially impact such programs? The chapter comprises four parts: (a) an argument for the necessity of IT-EE capacities; (b) a model for describing and understanding IT-

[2] We use the term *environmental education* (and its acronym EE) in this chapter because it is most commonly used by the Ministry (2009). We understand, however, that a variety of terms and expressions may be used in other contexts (e.g., sustainability education, environmental and sustainability education, education for sustainable development, and education for sustainability.

[3] The adjectives *initial teacher* and *pre-service* education are used synonymously in this chapter. We have adopted initial teacher (IT) to align with the terminology of the call.

EE capacities; (c) an examination of how IT-EE capacities are identified and cultivated, and how they potentially impact teacher education programs; and (d) a discussion of next steps.

The Necessity of IT-EE Capacities

This section underscores the necessity for enhancing IT-EE capacities in Ontario faculties of education, thereby setting the stage for an examination of the three questions discussed in the introduction. We describe "IT-EE capacity" in general terms, arguing for its requirement in IT education by (a) re-emphasizing the current predicament of Earth; (b) appealing to education as *a* social instrument to achieve sustainability reform; and (c) asserting the ethical responsibility of faculties of education to prepare ITs to provide effective EE within K–12 schools. In making this argument, we wish to clarify and assert the leadership role we play, as teacher educators, in enhancing IT-EE capacity within Ontario's faculties of education.

Before presenting our argument, it is important to understand the relationship among faculties of education and other elements influencing Ontario's K–12 schools system. In Ontario, ITs are granted a bachelor of education degree and an Ontario Teacher Certificate upon successful completion of a university-based, College-accredited IT education program. Thus, the College certifies ITs to teach in the province's K–12 schools in two of three grade divisions: namely, primary–junior (K–Grade 6), junior–intermediate (Grades 7-10), or intermediate–senior (IS) (Grades 7–12). Furthermore, the Ministry creates curriculum for all K–12 subject areas, and the Ontario Ministry of Training, Colleges, and Universities accredits all college and university programs, including IT preparation programs with the province's faculties of education. The complex jurisdictional mixture makes it very difficult for groups and individuals to effect significant change in university IT education programs and K–12 education.

Arguing for the Necessity of IT-EE Capacity

How lucky we are to live on a planet that continues to support life. Bursting with a bewildering diversity of life forms that feed, clothe, cure, inspire, and provide us with clean air and water, keep us company and maintain the stable ecosystems in which we can live. Yet, in a few brief centuries we have normalized a way of living that poses a threat to all life on Earth. An education system devoid of EE is not only a product of this broken model of existence, but may be helping perpetuate it (McKeown & Hopkins, 2005). Since 2009, the Ministry has legislated EE in Ontario's K–12 schools, requiring, by law, that all of Ontario's K–12 students be provided with basic EE. Recognizing the precarious nature of Earth and civilization—especially on account of climate change, biodiversity loss, air and water pollution, resource depletion, over-population, discrimination, violence, conflict, and war (United Nations, 2014; Worldwatch, 2016)—this legislation could not have come soon enough. These seemingly intractable challenges should not only be addressed in the context of K–12 EE and IT-EE but also in programs focused on Indigenous education, place-based education, mindfulness education, and social justice education. All of these programs require the development of essential EE capacities eventually enabling Ontario's K–12 teachers to effectively implement Ministry curriculum policy directives.

Education has the potential to be one of the most effective agents of change, especially if we can reform the education system in ways that prepare new generations with EE capacities needed to transform our relationship with Earth (Apple, 1979; Giroux, 1981; McKeown & Hopkins, 2005; Orr, 2004; O'Sullivan, 1999). Recognizing that many education systems tend to be conservative in nature, transformative change can be particularly challenging to achieve (Greenwood, 2010; Orr, 2004). However, if ITs are encouraged to adopt environmentalist perspectives, and implement new ideas and pedagogies in their future classrooms, then they can act as "seeds" who "sow" change in their classrooms. Nevertheless, challenges persist.

Among factors constraining work of faculty is a relative lack of support from those charged with overseeing IT education. If ministries of education have not developed clear EE requirements for the school system, or do not emphasize or prioritize them, it is not surprising that faculty find it difficult to provide space for EE in their programs. The Ministry EE policy document (Ministry, 2009) only commits to "encourage faculties of education to address environmental education in their pre-service curricula" (p.13) rather than requiring them to do so. The lack of EE in IT education programs is exacerbated by College policy, which gives only cursory mention of EE and a few generic statements that may pass as informal efforts to include EE in IT education (College, n.d.). While Ontario (Ministry and College) has made some gains in requiring EE in K–12 schools, the same cannot be said of directives to support the development and education of the provinces ITs. Faculties of education must leverage their unique position in the preparation of Ontario's ITs by advocating for the future of Ontario's K–12 students. One way this can be accomplished is by clearly acknowledging IT-EE capacities, advocating for them, and assuming leadership over their implementation within Ontario's faculties of education.

Research demonstrates that properly and competently educated and trained teachers are critical to the education of children (Darling-Hammond, 2012). We have an ethical responsibility, both on grounds of the future of Earth and our mandate as IT educators to prepare future teachers for the task of EE in K–12 schools. If we fail to assume responsibility or leadership for this, we breach the terrain of the "unethical." Again, faculties of education are pivotal in preparing ITs with the EE capacities they require to educate a future generation of children, who in turn, need to know how to deal with complex and urgent problems developing now and in the future.

This section has underscored the necessity for enhancing IT-EE, and has set the stage to examine the three questions discussed earlier. Before tackling these, it is important to understand EE's current status within Ontario's IT education programs.

Status of EE in Ontario IT Education Programs

Specifically, it may appear that EE is occurring within Ontario's IT education programs, whereas in the majority of Ontario's faculties of education, it is not (Inwood & Jagger, 2014; Beckford, 2008; Lin, 2002; Towler, 1981; Rioux, 1973). Currently, any EE occurring in Ontario's pre-service programs occurs because of the passionate and dedicated efforts of a few committed faculty members (Inwood & Jagger, 2014; Beckford, 2008; Lin, 2002). This lack of IT-EE capacity presents us with a formidable challenge that needs to be addressed before any meaningful enhancement of K–12 EE programming. In the next section, a model for building IT-EE capacities will be examined. The model will help describe and understand IT-EE capacities.

A Model for Describing and Understanding IT-EE Capacities

A Model for IT-EE Capacities

This section introduces the reader to an adaptation of Grant's (2008) model for developing IT-EE capacities. It then addresses the first question: What initial teacher EE capacities should teacher education programs instill?

Grant (2008) suggests successful teacher education programs focus on developing IT capacities. IT *capacities* consist of two components: *experiences/natures* and *competencies* (knowledge, skills, and attitudes). We have interpreted this model through an illustration provided by Figure 1. Basically, experiences/natures refers to academic and non-academic experiences ITs may have experienced prior to

IT education. For example, academic experiences might include those acquired whilst an undergraduate; such as experiences students might gain through a service-learning project. Non-academic experiences could be those acquired through family upbringing or extracurricular activities. Natures, academic or non-academic, may be defined as the personality traits ITs present with prior to IT education. Competencies, by contrast, refer to the knowledge, skills, and dispositions acquired during IT education. There is therefore, a temporal distinction between experiences/natures and competencies,[4] with the former presenting prior to and the latter presenting after IT education.

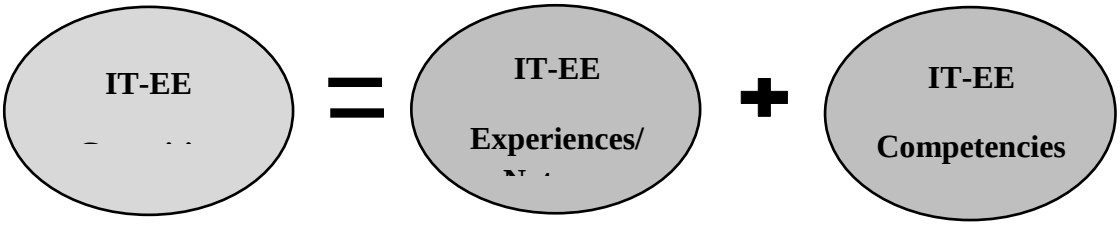

Figure 1: An EE capacities model consisting of experiences/natures and competencies.

Describing IT-EE Capacities: Experiences/natures and Competencies

It is deeply distressing to see the underprioritization of EE in Ministry and College policy and accreditation guides. Worse still, this phenomenon appears to be the case across Canada (Karrow, DiGiuseppe, Elliott, Gwekwerere, & Inwood, 2016). While specific IT education policy directives and accreditation requirements can be viewed as modest and unassertive, this lack of stringency may, by allowing a broader scope for interpretation, act as a catalyst for change.

IT-EE experiences/nature. Currently, in Ontario, IT education program admission and competency standards address EE only indirectly—if at all. Generally, admission is based on a combination of academic and nonacademic experience. An applicant's academic experience is usually

[4] The extent to which experiences/natures and competencies can be observed, is discussed in the third section: An examination of how IT-EE capacities are identified and cultivated.

assessed via the applicant's undergraduate GPA, while nonacademic (personal/professional) experiences are assessed through a written experience profile and, in some cases, personal interviews. The Table summarizes IT education program admission protocols of four Ontario programs.[5]

Table 1
Ontario IT Education Program Admission Protocols

	FACULTY			
	A	B	C	D
Experience Profile	-Yes -Written essay discussing two teaching-related experiences of at least 100 hours in duration.	-Yes -List of experiences and a written essay discussing the role of education in society and reasons for wanting become a teacher.	-Yes -List of experiences and a reflection on challenges/insights gained in teaching or life experiences. -The program favours commitment to social justice, inclusivity, and ethical consciousness.	-Yes -Essay discussing teaching-related experiences, insights, challenges, actions, and learning, and discussion of a life experience showing openness/commitment/action towards equity in diverse classrooms, schools, and underserved communities.
Academic Transcript (Minimum GPA – Percent)	Yes (2.7—70%–72%) (10 best credits)	Yes (2.7—70%–72%) (10 best credits)	Yes (2.7—70%–72%) (10 best credits)	Yes (3.3—77%–79%) (final year of undergrad)
Interview	No	No	No	No
Adjudicators	-Non-academic admissions office staff -Training is provided.	-For primary-junior applicants: sessional instructors -For intermediate-senior applicants: non-academic	-University faculty member or senior administrator and field reader (e.g. associate teacher, school principal, or school board employee). -Training is provided.	-Transcripts assessed by non-academic staff (Training is provided) -Experience Profile assessed by faculty and sessional instructors possessing graduate degrees (Training is provided)

[5] At the time of this writing, a provincial study was completed examining admission criteria across Ontario faculties of education. See Holden (2016).

		office staff. -Training is provided.		
Adjudication	-GPA (50%) -Experience Profile (50%)	-GPA (70%) -Experience Profile (30%)	GPA (50%) -Experience Profile (50%)	GPA (23%) Experience Profile (55%) References (22%)
Special Consideration	-Aboriginal -Visible minorities -Disability	-Aboriginal -Visible minorities -Disability	-Aboriginal -Visible minorities -Disability	- Ethnic diversity - Cultural diversity - Social diversity - gender, i.e., males interested in Primary teaching; females interested in non-traditional subject areas

All four programs (Table) assess applicant suitability through a combination of previous academic experiences (undergraduate transcript/GPA) and they assess personal/professional experiences through experience profiles involving written statements/reflections/essays.[6] In all cases, the minimum (cutoff) GPA was 2.7 (70%–72%). None of the programs required applicant interviews, and all gave special consideration to Indigenous applicants, visible minorities, and applicants with disabilities. Interestingly, within the experience profile of Faculty D, there was a specific allowance involving gender, with males interested in primary teaching and females interested in non-traditional subject areas (e.g., physics), being accommodated further. In all cases, those assessing profiles were given specific training for the task (see the Table for academic vs. non-academic assignment of said task). Admission decisions were based on a proportional reckoning of overall undergraduate GPA and experience profile results.

In none of the admission processes summarized in the Table, is there specific reference to EE in the assessment of undergraduate academic experiences (courses taken / programs / degrees pursued) or

[6] In response to the query of one reviewer as to whether experience profiles prompt applicants to include "anything related to EE," to our knowledge there is no explicit criteria to this effect.

the applicants' personal/professional experience profiles, although there is an emphasis in most protocols favouring applicants demonstrating experiences or commitments to equity and social justice. Also, some programs instruct adjudicators to identify and favour applicants with significant academic or nonacademic experiences in subject areas where there is a demonstrated shortage of teachers, such as elementary science and mathematics. Nevertheless, in all of the programs, applicants have an opportunity to include environment-related experiences in their experience profiles, although without prompting or express preferential treatment.

The lack of any preferential consideration for IT education program applicants with significant EE-related academic and non-academic experiences hinders admittance of applicants showing commitment and promise as developing EE leaders. While the current situation does not bode well for helping to build IT-EE capacities, it stresses the need for faculties of education to design and implement IT education programs that help develop competencies leading to robust and enduring EE capacities.

In one of the four faculties of education there is currently a review of the academic and non-academic admission criteria. As we have argued, IT-EE requires unique capacities in the form of experiences/natures and competencies. Opportunities exist for all institutions to advocate changes that would allow applicants to self-identify as possessing necessary academic and non-academic EE experiences/natures for which they could receive recognition or preferential treatment. On the academic side of adjudication, if EE was deemed a teachable subject by the Ministry and College, then applicants holding EE-related degrees would be motivated to apply. On the non-academic side of adjudication, EE-related experiences/natures gained through family or extracurricular life experiences working with children while demonstrating leadership, instructional, or programming responsibilities could be targeted initiatives. Experience profiles that IT applicants are required to complete could provide opportunity for self-declaration, and adjudicators could review them preferentially. Given the dearth of

EE teachers and leaders in Ontario K–12 schools (Fazio & Karrow, 2012), the fact that EE is recommended by Ministry (2009) and is part of the recognized Ontario curriculum (College, n.d.), the targeted selection of future EE teachers is reasonable, necessary, and long over-due.

IT-EE competencies. Having explored how IT candidate experiences/natures might contribute to the development of IT-EE capacities, we now consider the development of IT-EE competencies. IT-EE competencies can be better understood through a framework provided in *Learning for the Future: Competences in Education for Sustainable Development* (UNECE, 2012) (Figure 2). Introduced by Delors (1996) and summarized by UNESCO (2012), this framework is internationally recognized.

A framework for IT- EE competencies. UNECE (2011) identifies three essential characteristics of EE: *a holistic approach*, which seeks integrative thinking and practice; *envisioning change*, which explores alternative futures, learns from the past, and inspires engagement in the present*; achieving transformation*, which serves to change the way people learn and the systems that support learning (p. 12). Clustering competencies within the following framework can address these characteristics:

- **Learning to know:** Understanding the challenges we face locally and globally, and the role that education can play.
- **Learning to do:** Developing practical skills and action competencies in relation to education for sustainable development, including the ability to communicate a sense of urgency for change but also inspire hope.
- **Learning to live together:** The importance of partnership, and concepts such as interdependence, pluralism, mutual understanding, and peace. This includes the ability to challenge unsustainable practices across educational systems.
- **Learning to be:** Personal attributes such as autonomy, judgment, and personal responsibility in relation to sustainability.

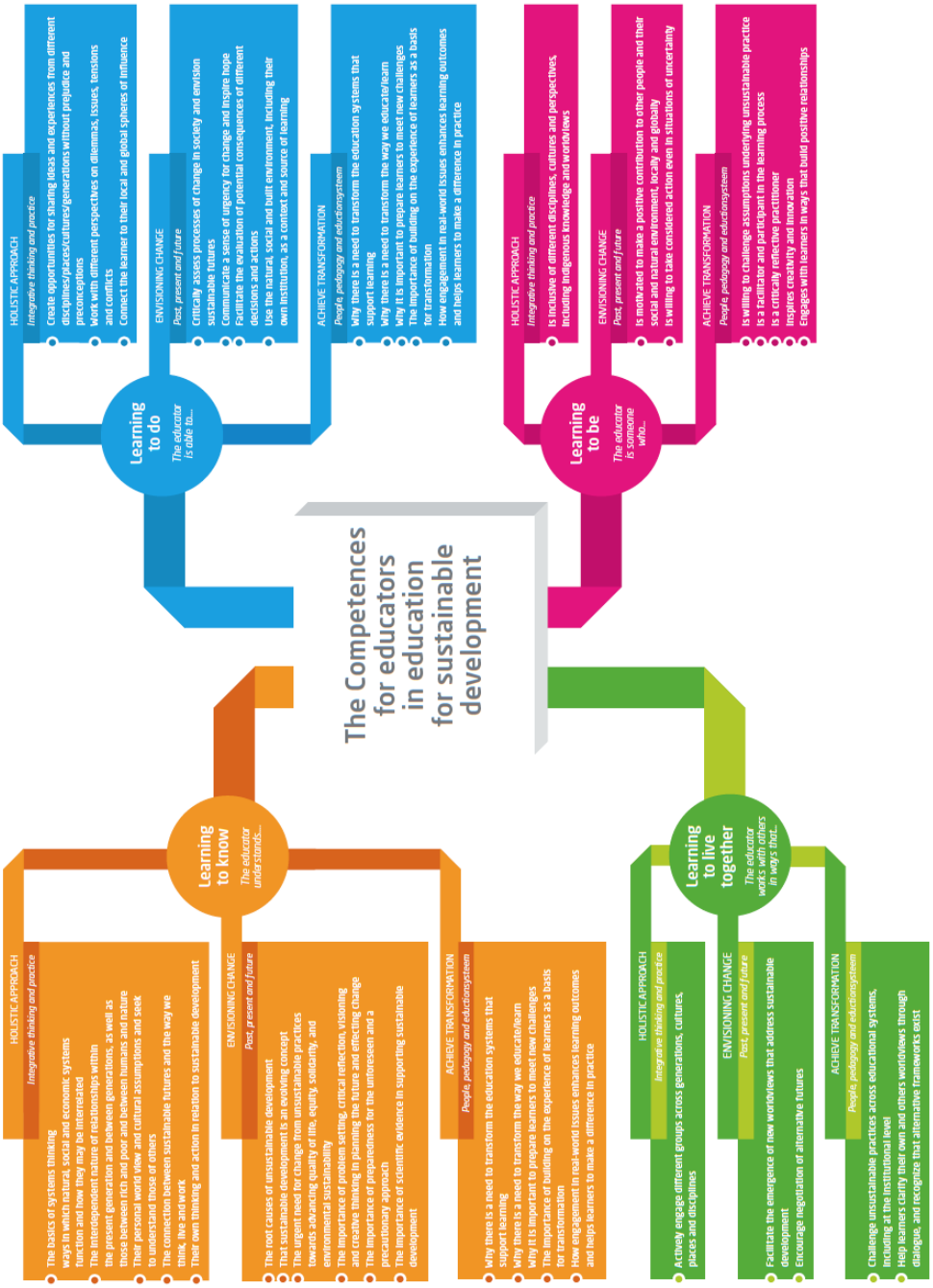

Figure 2: A framework for IT-EE competencies. The competencies for educators in education for sustainable development. Reprinted from *Learning for the Future: Competences in Education for Sustainable Development*. UNECE, 2012, Retrieved October 24, 2016, from http://www.unece.org/env/esd/Sixth%20Meeting/Learning%20for%20the%20Future_%20Competences%20for%20Educators%20in%20ESD/ECE_CEP_AC13_2011_6%20COMPETENCES%20EN.pdf. Copyright 2012 by UNECE. Reprinted with permission.

To summarize, an EE-oriented adaptation of Grant's (2008) model for IT capacities was introduced. This model included two components: experiences/natures, and competencies. It was suggested that teacher education program admission committees could adjudicate IT-EE experiences/natures in more inclusive ways that formally recognize, through the adjudication review, the types of academic and non-academic experiences/natures that students may possess. Typically, within our four institutions, IT education applicants are evaluated using academic transcripts and experience profiles.[7] Similar applicant evaluation methods are used elsewhere (Holden, 2016; Kosnik, Brown, & Beck, 2005). However, admission processes could be more discerning, evaluating, for example, undergraduate and graduate degrees for knowledge, skills, and attitudes foundational to EE. Referring to Figure 2 and the clusters of competencies organized under the headings learning to know, learning to do, learning to live together, and learning to be, prospective students could be selected, in general, on their respective demonstration of the following: understanding the challenges we face locally and globally, and the role that education can play; developing practical skills and action competencies in relation to education for sustainable development, including the ability to communicate a sense of urgency for change but also inspire hope; the importance of partnership, and concepts such as interdependence, pluralism, mutual understanding, and peace. This includes the ability to challenge unsustainable practices across educational systems; and personal attributes such as autonomy, judgment, and personal responsibility in relation to sustainability. Re-focusing admission selection practices, in this way, could enhance IT-EE capacity. Moreover, re-designing experience profiles for applicants to articulate explicitly how their experiences build a foundation of knowledge, skills, and attitudes (see Figure 2)

[7] There appear to be slightly different approaches to the relative weighting of application components, with some institutes protecting this information from the public. See the Table.

unique to EE may further enhance IT-EE capacities and provide a foundation on which to further develop EE competencies (see Figure 2).

We believe the time has come to re-imagine IT education as a form of education that develops the sorts of capacities that will enable ITs to be agents of change for a more sustainable future. In the next section, we return to the two remaining orienting questions introduced in the introduction. To this point, our collective response (four Ontario faculties of education) has provided a description of IT-EE capacities. The next section examines how these capacities can be identified and cultivated in Ontario's IT education programs, and discusses the potential impact IT-EE capacities may have on these programs.

IT-EE Capacities: Identification, Cultivation, and Impact

A general conceptual framework (UNECE, 2012) to delineate EE competencies was discussed in the previous section with IT-EE competencies clustered into four categories: learning to know, learning to do, learning to live together, and learning to be. The combination of the two components of EE capacities—namely, EE experiences/natures and EE competencies—argues Grant (2008), optimizes IT-EE capacities. In light of this we now turn to addressing the two remaining questions posed in the introduction:

- How are these initial teacher EE capacities identified and cultivated within teacher education programs?
- How do these capacities, developed by teachers during and following their teacher education program, potentially impact teacher education programs?

Our approach to answering these questions again focuses on IT-EE capacities, which, according to our framework, includes experiences/natures and competencies, so each question will be addressed in relation to each of these substituent components. In general, IT-EE experiences/natures are adjudicated

at the admissions level (prior to IT-EE) while IT-EE competencies are addressed through curricular programming (after admission to IT-EE). In terms of programming, UNECE (2013) makes the following suggestion:

> The Competences should be a basis for the review of curriculum documents. . . . In order for educators to practice the Competences they should be supported by a curriculum which reflects such educational approaches. . . . Materials may need to be developed to further support ESD. (p. 41)

In other words, a teacher education program should have an EE curriculum providing opportunities for the development of competencies, resulting in the enhancement of capacities. For examples of such curricula, with specific course syllabi, see *Deepening Environmental Education in Preservice Education Resource* (*DEEPER*), (Inwood & Jagger, 2014). This is important because fine-tuning of competencies will also require fine-tuning of curricula—the two must occur in tandem.[8]

It is one thing to identify IT-EE capacities and examine how these capacities are characterized and cultivated during and after IT education programs, and it is quite another to incorporate EE within teacher education programs (Greenwood, 2010). Institutional change, particularly in IT education, is a complex task. Greenwood (2010) sums it up as follows—offering a glimmer of hope:

> Environmental and sustainability education are marginal to teacher education discourse if they are part of it at all. However, the professional autonomy available to faculty members does make it possible to create space at the grassroots within the otherwise regulated system to pursue educational aims that are neglected by convention and by design. Over time, grassroots work can begin to change local cultural practices and can coalesce into meaningful changes in policy. (p. 144)

How Are IT-EE Capacities Identified and Cultivated Within IT Education Programs?

Next we will discuss how IT-EE capacities may be identified and cultivated within IT-EE

[8] See Greenwood (2010), for an excellent example of how an entire department of a teacher education program, reconceptualized its mission, goals, and objectives to align values with program curricula and student competencies.

programs first by considering aspects associated with capacity identification, then with capacity cultivation.

Identification of IT-EE capacities. As we will see, the identification of IT-EE capacities consists of examining experiences/natures and competencies. While IT-EE experiences/natures could be identified and adjudicated by faculties of education, competencies *are* already pre-identified by such third-part stakeholders such as the UNECE (2012). The challenge ahead, is to more tightly align UNECE's (2012) competencies with the Ministry's EE policy framework (specifically IT education) and those experiences/natures ITs could showcase within their applications to faculties of education.

IT-EE experiences/natures. As faculties of education enjoy significant discretion in selecting IT candidates through local admission criteria and adjudication processes (Holden, 2016), the identification of experiences/natures is also an inherently local function.[9] Thus, faculties are in a position to characterize, for themselves, IT candidate experiences/natures, according to their particular interests, values, and perspectives. However, if IT-EE is—as denoted in the UNECE (2012) framework—a holistic, envisioning, and transformative endeavour, then we ask whether or not typical IT education admission requirements provide the necessary foundation for IT-EE competency development? Given the unique nature of EE as a discipline founded on holism, envisioning, and transformation, screening IT candidates for knowledge, skills, and attitudes reflective of these qualities seems desirable. This could involve examining academic records for credentials in fields such as environmental studies, in essence, any academic program founded on holism, envisioning, and transformative ways of teaching, learning, and understanding (see Figure 2). Additionally, applicants could be required to profile certain experiences, including experiential, leadership, and wilderness experiences, where complex holistic,

[9] It should be acknowledged, given there is no centralized adjudication process in Ontario's faculties of education, that they may compete with one another "normativizing" the process.

envisioning, and transformative activities involving programming for children/youth are specifically identified.

To encourage potential IT education students to pursue more EE-oriented undergraduate programs, the College should recognize EE as a teachable subject in IT education programs at intermediate and senior levels. Classifying EE as a teachable subject would elevate the profile of EE within an IT education program and attract more candidates with the knowledge, skills, and attitudes unique to EE. In terms of addressing the nature of applicants, faculties could emphasize EE-oriented attitudes such as resilience, determination, hopefulness, flexibility, creativity, caring, holism, fair-mindedness, and mindfulness (see Figure 2). Again, while some of these natures apply to all teachers, they are particularly useful in the field of EE in the sense that these attributes maximally orient the IT candidate for the development of IT-EE competencies once admitted to a IT education program.

IT-EE competencies. The internationally recognized standard for IT-EE competencies was derived from the Joint Ministerial Session on Education for Sustainable Development held at the Belgrade Environment for Europe Ministerial Conference in 2007. This standard recognized that one of the fundamental bottlenecks in achieving EE was the "competence of educators" (UNECE, 2012, p. 7). Henceforth, the UNECE Steering Committee on ESD established an Expert Group on Competencies in ESD whose mandate included identifying

> a range of core competencies in ESD for educators, including defining these as feasible, to serve as a tool to facilitate the integration of ESD into all educational programs at all levels, as well as guidelines for the development of these competences among educators. (UNECE, 2012, p. 7)

These competencies transcend Ontario's EE policy framework (Ministry, 2009), which classifies competencies into traditional knowledge, skills, and attitudes categories. While these types of outcomes do not apply directly to ITs, they are competencies all Ontario K–12 teachers are to develop in their

students. Thus, we may infer that to nurture such competencies in students, teachers must first possess such competencies themselves—especially cognate competencies that derive directly from the UNECE (2012) competencies framework.

Cultivating initial teacher EE capacities. In general, given the marginal status of EE in IT education (Inwood & Jagger, 2014; Beckford, 2008; Lin, 2002) it makes it difficult to cultivate IT-EE capacities when their explicit identification remains happenstance. In Ontario, development and implementation of EE policies and practices have largely been piecemeal, with a variety of informal grassroots initiatives such as the *DEEPER* guide (Inwood & Jagger, 2014) leading the field. While these initiatives are important, they amount to only minor developments when compared to state-mandated IT education programs preoccupied with "over-determining course content" requirements for teacher certification (Greenwood, 2010).

IT-EE experiences/natures. When, in the future, IT candidates' applications and adjudication more explicitly accommodate IT-EE experiences/natures, the challenge changes to one of providing and maintaining the necessary programming to instill the IT-EE competencies described previously (see Figure 1). This may be accomplished by, for example, establishing EE as a core aim of an entire IT education program or department (Greenwood, 2010), or, as will be described in more detail shortly, a variety of other programmatic adaptations tailored to this objective. At this level, a department could effectively communicate its aims and these would, in turn, further reinforce and nurture IT-EE experiences/natures.

IT-EE competencies. Establishing EE as a key aim of an entire IT education program would create a solid foundation for nurturing EE competencies and furthering EE curriculum development. Liaising with other academic units within one's institution might bring the added advantage of scaffolding initiatives and nurturing the development of a political base. For example, at Brock

University, an initiative within the Department of Teacher Education to liaise with one of the university's transdisciplinary foci—the Environmental Sustainability Research Centre—may go some way in helping to nurture IT-EE competencies once they become embedded. If such avenues are intransigent, other more grassroots efforts can be effective. We now turn to examine our collective and organic efforts to cultivate IT-EE competencies within our respective faculties of education.

Without the formal support from faculties of education in developing IT-EE competencies and the establishment of EE as a teachable subject by the College, we wonder how significant change in IT-EE can happen. As a small group of faculty of education members from across Southern Ontario, we have, for over 4 years, been collaboratively exploring strategies to help develop and enhance IT-EE capacities. We have shared our struggles and our successes, and engaged in deep discussion about the tensions between our shared vision and what needs to be done to effect real change in IT-EE everywhere. We agree that creating an action plan to build capacity in IT-EE needs to include a variety of stakeholders, including teacher candidates, IT education instructors and administrators, and educational policy-makers at all levels of the education system in Ontario.

Most of us work very closely with ITs who have developed an understanding of the great importance of EE through their IT-EE experiences/natures despite the lack of explicit criteria for this aspect of capacity when they apply to our programs. These ITs are full of ideas and suggestions for EE program development. Thus, we may find strategies for developing and enhancing EE competencies by working closely with ITs at the grassroots level. This type of strategy has been documented by the Council of Ministers of Education, Canada (2012), Sims and Falkenberg (2013), and Inwood & Jagger (2014), all of whom have found evidence that EE programs can be developed and enhanced.

How Do IT-EE Capacities Potentially Impact Teacher Education Programs?

We have been arguing that the unique nature of EE requires a unique set of IT-EE capacities. A corollary to this is to acknowledge that if such an IT-EE program were fully implemented, it could have a significant impact on the nature of IT education as we know it. What is it about IT-EE capacities that might fundamentally change the character of IT education? Since EE has been defined as holistic, envisioning, and transformative, any IT education program adopting EE would significantly be impacted by these features. Any faithful allegiance to EE-IT capacities would necessarily entail significant changes to many program elements, including curriculum, timetabling, the nature of practica, and even student assessment and evaluation. Larger, more systemic, program changes could be imagined if faculties could better articulate aims, principles, and values reflecting the field of EE (Greenwood, 2010). For example, the interdisciplinary nature of EE and the distinctiveness of IT-EE capacities might require the restructuring of traditional course timetabling around multidisciplinary or interdisciplinary hubs (Karrow & Fazio, 2015). In this way, other programs vying for timetabling space—for example, Indigenous education, place-based education, mindfulness education, and social justice education—could find curricular resonances with EE and the competencies being advocated. Moving from the traditional timetabling of discrete subjects with specific time allocations to interdisciplinary curricular fields with more diffuse time blocks certainly has the potential to impact teacher education. Other significant impacts may include shifts in teacher candidates' views of knowledge, and changes in the manner in which field experience (i.e., practica) might be conceptualized and implemented.

Beyond the hypothetical and hopeful, encouraging changes are happening across the province (Inwood & Jagger, 2014.) What can be learned from these developments? One important insight is that individual faculty members can start this work with small initiatives, employing few resources, building teacher candidates' competencies in EE by collaborating with community partners who may contribute

support or expertise. Another insight is that these small-scale initiatives can share their successes with faculties of education with similar interests in EE and sustainability, helping to build a larger community within a faculty or across faculties of education. Small projects can grow into significant enterprises without official sanction or support as ITs show their interest and commitment to learning about EE. But as Lakehead University's achievements attest, finding alignment with wider university priorities can better embed EE as an important part of mandatory IT education curriculum, and work towards developing the EE capacities of all teacher candidates, not just those who choose to participate in elective EE activities. Large-scale, systemic change in IT-EE in Ontario may be stimulated by the development of mandatory EE courses or EE coursework, along with the College identifying EE as a subject teachable and the Ministry supporting this through appropriate curriculum programming.

If change led by individual faculty can help develop IT-EE capacities (as discussed above), what else is needed to bring about large-scale systemic IT-EE reform? In general, as leaders of EE in our own faculties, we have been advocating for the need to enhance IT education by developing faculty and administrative capacities for EE. This is mirrored by several challenges, including selecting teacher candidates based on existing EE experiences/natures for admission, and faculty hiring along similar lines. In addition to changes in hiring practices, there is also a need for developing knowledge, experience, and expertise among existing faculty. This does have some precedence in Ontario, with the work being done by the Centre for Place and Sustainability Studies at Lakehead University, and the former Sustainability Education Academcy (SEdA) at York University. However, scaling this up would likely require support and alignment from the Ministry, the Ministry of Training, Colleges, and Universities, and the Ministry of the Environment and Climate Change—a lofty goal.

To date, our team has been working towards these types of changes in more modest ways. Starting with the DEEPER provincial roundtable in 2013, we began conversations regarding the need to

develop teacher candidate's capacities in EE. This was furthered, by providing workshops, conference presentations, and publications. We shared the grassroots activism that has been taking root in faculties across Ontario, some of which aimed to lead by example, so that other faculties can learn by doing similar work. We have also reached out to administrators and policy-makers to engage them in the conversation, knowing that they are key players in the further development of this work. By connecting with the Ministry, the Ontario Association of Deans of Education, and the College, we have begun to increase this work by engaging these important stakeholders. Furthermore, broadening and enhancing relationships with community partners has also been an important development. Community partners have much valuable expertise to share, especially with teacher candidates who are just beginning to identify partners they can bring into their own classrooms in the future. In the next part, we will propose a course of action for future development.

Next Steps

Reform Principles and Actions

The *Report of the Working Group on Environmental Education* in Ontario specifically recommended that EE should become a requisite component of teacher education (Working Group On Environmental Education, 2007). As already discussed, this is not an easy goal to achieve, since teacher education bureaucracy is tightly controlled and IT-EE is still not a fundamental educational goal for students or teacher candidates (Beckford, 2008; Greenwood, 2010; Jickling, 1997). Nevertheless, the grassroots examples discussed above provide guidance on how effective IT-EE programming can be initiated in faculties of education. These grassroots initiatives must then be recognized at a systems level, including faculty admissions policies and faculty leadership orientations, and also rewarded in terms of time and support at a program level. Furthermore, ideas drawn from school reform literature (e.g., Guhn, 2009; Hargreaves, Lieberman, Fullan, & Hopkins, 2010) and EE implementation programs

in elementary and secondary schools (e.g., Fazio & Karrow, 2012) provide additional insights for facilitating change in IT-EE. In particular, the EE reform literature describes two important reform principles: (a) faculty members overcoming resistance to change in existing practices, and (b) enhancing the capabilities of the EE adopters. Aligning these principles with recommendations from McKeown and Hopkins (2005), we suggest the following action steps for instigating change in faculties of education:

- enhancing faculty awareness and professional development regarding EE;
- providing administrative recognition and reward for engaging in faculty-wide development and program reform;
- institutionalizing, through policies and guidelines, admissions processes and programs that enhance EE capacities; and
- leveraging teacher candidates and community partners/organizations to enhance and advocate for EE capacity and competency development.

The previous action steps, together with the change from a two to a four-semester model in teacher education programs in Ontario since September 2015, provide a unique opportunity for faculties of education. Stakeholders could lobby for IT education reform that prioritizes the development and enhancement of IT-EE.

An important next step in the process of enhancing IT-EE is to provide an opportunity for faculty of education representatives and community partners from across Canada to meet, share, and discuss their views, perspectives, and experiences in this area. In June 2016, our group hosted the first National Roundtable on Environmental and Sustainability Education in Pre-service Education. Over 75 delegates from across Canada met in person to discuss, analyze, share research on, and strategize ways to strengthen the presence of environmental and sustainability education (ESE) in pre-service teacher education. Representatives from faculties of education, NGOs, ministries of education, policy agencies, and school boards shared their expertise and experiences to develop new initiatives, plan potential

collaborations, and strengthen their networks. One of the key outcomes of this event was the creation of a National Action Plan and Declaration that will focus on establishing a new national organization, assessing the state of ESE in IT education, creating new resources to support this work, and advocating with policy-makers and educational leaders, for the importance of this work.

As this work develops, outcomes of this initiative will be shared through the following Internet web site: http://eseinfacultiesofed.ca

Summary and Recommendations

This chapter began with a call to prioritize IT-EE in response to global environmental challenges. CATE's current focus to engage faculties of education in discussions focused on the theme, What Should Canada's Teachers Know? Teacher Capacities: Knowledge, Beliefs and Skills, is a welcome relief to those of us concerned, determined, and committed to IT-EE. The argument being made is that EE is a distinct field, with a well-defined history and foundation, requiring a unique skill set, and predisposed to certain subject attitudes and dispositions. As such, EE requires a distinct set of IT capacities. An education that prioritizes EE can result in critically important, relevant, holistic, envisioning, and transformative IT capacities—the sorts of capacities essential to preparing the next generation of classroom teachers with the knowledge, skills, and attitudes needed to navigate their way in a world increasingly subject to the pressures of globalization, unbridled capitalism, and social and environmental degradation.

Through our adaptation of Grant's (2008) model we delineated the components of IT-EE capacities, their interrelationship, and the degree of discretion faculties of education have in the identification and cultivation of EE capacities. We also discussed the complex, yet substantive, role third party stakeholders, such as the UNECE, the Ministry, and the College, play in describing and

influencing the development of EE capacities in faculties of education.

Building on the adaptation of Grant's (2008) IT-EE capacities model and a detailed description of IT-EE capacities, we explored how such capacities are identified and cultivated, and how they potentially impact IT education programs. IT-EE capacities derive from the adjudicated experiences/natures profiles that IT applicants provide in their applications, which faculties of education have significant discretion over. For instance, we identified that faculties of education could:

- Support politicization of the argument (especially with the College) that since EE is a well-established disciplinary field, it requires unique, yet distinct, IT-EE capacities, and accordingly, teachable subject status.
- Hire IT-EE faculty with high levels of interest, knowledge, and experience in EE-oriented pedagogy and programming.
- Reform the IT education admissions process to ensure that (a) experience profiles provide opportunities for applicants to self-identify/highlight the whole range of experiential, leadership, and wilderness experiences they may have; (b) provide descriptions of experiences that demonstrate applicant "natures" in terms of resilience, determination, hope, flexibility, creativity/ingenuity, appreciation, care, holism, fair-mindedness, and mindfulness (Figure 2); and (c) ensure that academic transcripts include evidence of greater diversity in undergraduate program completion, especially degree programs with environmental content—since it may be assumed that such programs inherently foster EE's defining traits of holism, envisioning, and transformation.

Furthermore, our adaptation of Grant's (2008) model emphasizes that IT-EE capacities essentially derive from competencies. We indicated our preference for the competencies included in the well-established Initial Teacher Competencies for Sustainability model (UNECE, 2012) which frames competencies under the rubrics of learning to know, learning to be, learning to live together, and learning to do (see Figure 2), with specific competencies itemized further under the essential traits of EE: holism, envisioning, and transformation. And, since it is evident that, currently, IT-EE capacities are being appropriated within faculties of education on a somewhat piecemeal and ad hoc basis, we must turn to the question of capacity cultivation. While small-scale, grassroots curricular and programming

approaches are a step in the right direction (Inwood & Jagger, 2014; Dippo, 2013), Greenwood (2010) emphasizes that these "small openings" can (and should) be further supported through an academic unit's careful articulation of conceptual frameworks reflecting well-defined principles and values that will stimulate and guide the development and implementation of specific and robust EE programs everywhere.

In our Next Steps section, we discussed future directions on two broad levels: (a) the grassroots or faculty of education level, and (b) levels beyond faculties of education, such as the Ministry and the College. For those of us working in faculties of education, we may learn much from specific practices such as those currently at Brock, Lakehead, Nipissing, OISE-UT, Trent, York, and UOIT. While these strategies capitalize on the relative autonomy of faculty-level planning and decision-making, the same cannot be said of change at levels beyond faculties of education—including government and other policy-making bodies—which operate in response to political and ideological exigencies of the day. Ideally, all levels should work together to support the growth and enhancement of IT-EE in Ontario. In particular, we would like to re-emphasize the need for (a) the College to establish EE as a teachable subject within Ontario's education system, and (b) the Ministry to establish a strong EE curriculum emphasis within the province's K–12 school system. These two changes alone would result in needed modifications to IT program application components, criteria, and adjudication standards in an effort to populate faculties of education and the K–12 school system with more highly qualified and effective EE educators. These changes would work to significantly enhance the description, identification, and cultivation of IT-EE capacities.

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Chapter 07: Building New Teacher Capacities through an Innovative Practicum: Learning to Teach on a Construction Site

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Abstract

This study examines the pre-professional development of two pre-service teachers during an innovative student teaching placement on a housing construction site. Although there are a multitude of articles on the practicum, none have examined pre-service teacher development during a teaching placement on a housing construction site. In this article, we argue that new teachers need to develop the capacities for 21st-century learning that include interdisciplinary learning, the development of community partnerships, the ability to view themselves as co-learners, and willingness to become members of a community of practice. Innovative placements offer the opportunity to develop such capacities.

Building New Teacher Capacities through an Innovative Practicum: Learning to Teach on a Construction Site

Introduction

Initial teacher education programs strive to provide pre-service teachers with exposure to the range of skills, abilities, and knowledge required to be a successful beginning teacher. We rely on the practicum both to enhance learning and to evaluate pre-service teacher ability to put those skills, abilities, and knowledge into practice. The majority of practicum placements take place in traditional classrooms. Placing pre-service teachers in a traditional classroom makes the practicum experience more predictable and the task of evaluating pre-service teacher performance straightforward. We know that pre-service teachers are likely to utilize the same teaching practices as their mentor teachers in order to avoid the risk of failure during the practicum (Weisner & Salkend, 2004; Hollingsworth, 1989). Yet, in order to prepare pre-service teachers for the 21st-century classroom, we need to provide opportunities that move beyond traditional approaches to education. Chronicled here is the examination of the pre-professional development of two pre-service teachers during a field-based practicum placement on a housing construction site. This is of import because, while other authors have examined the learning experienced by high school students during educational experiences on a construction site (e.g., Dorward & Archibald, 1994; Enos, 2013), none have examined the development of pre-service teachers undergoing field experience in similar contexts.

The housing construction program described here, Building Futures, has been in existence since 2012 and is one of many innovative practices within the Rocky View School District, a mid-size school division in southern Alberta. The Rocky View School District has partnered with two local

homebuilders, McKee Homes in Airdrie, Alberta, and Kingsmith Homes in Cochrane, Alberta, to create the Building Futures program. Through the Building Futures program, students complete the Grade 10 curriculum while constructing two homes. The students take the majority of their classes in the garage of the homes under construction and each Friday they meet at the gymnasium of a local high school to fulfill the physical education component of the Grade 10 curriculum. Since its inception the program has been receiving accolades from students, their parents and the community for its innovative design and delivery.

The research presented here, still in its emergent phase, was done at the Airdrie location. At this location, during their Grade 10 year at the Building Futures program, students are taught by two teachers, with one teacher responsible for the science and math, while the other focuses on the English and social studies curriculum. Aside from completing the regular Grade 10 curriculum, these students also earn thirty-one career and technology credits by working with experienced tradespeople during construction of the homes. For the pre-service teachers involved, this placement provided not only curricular experience in the high school setting, but the opportunity to work in a paired placement in an innovative and non-traditional school setting. As teacher education programs adapt to ever-changing educational contexts, innovative practica such as that at the Building Futures site offer the opportunity for pre-service teachers to develop capacities beyond those experienced in a traditional classroom.

Context

The two pre-service teachers began their final practicum placements at Building Futures after completing two previous placements in traditional school environments. Students were originally placed at Building Futures in their third placement, spanning a six-week period. As the pre-service teachers

appeared to be thriving in the practicum, they were given the opportunity to complete their final eight-week placement at the site.

Placing the pre-service teachers in this innovative learning environment was both a risk and an opportunity. The pre-service teachers placed at the Building Futures site had to be flexible enough to adapt to the environment and willing to teach in the garage of a home under construction. In addition, they had to be creative enough to design lessons that would make use of the environment of the two homes under construction by utilizing project-based learning in a hands-on environment.

Literature Review

Teacher education programs have the responsibility to graduate new teachers who have a "critical vision of what education is for" (Den Boer, 2015, para. 8). As teacher educators, we are responsible for cultivating essential teacher capacities including flexibility, creativity, and a willingness to take risks. In order to do so, we must create an educational environment that prepares "young people for the shifting economic, technological, and socio-political realities of the 21st century" (Friesen & Scott, 2013, p. 2). This next generation of teachers will be required to develop stronger relationships with community and implement innovative methods to convey curriculum as a means to address the shift to a knowledge-based economy (Darling-Hammond et al., 2008). This will require educational institutions, including post-secondary institutions, to shift their gaze beyond traditional approaches to and experiences with education.

In an examination of the skills and competencies required of new teachers in British Columbia, Stewart (2012), the associate superintendent of human resources with the Vancouver School Board, suggests that the shift to more student-centered learning environments will require educators who are willing to be co-learners with their students, to use interdisciplinary approaches, and to facilitate learning experiences for students that contribute to the community at large. In order to accomplish this,

teachers will need to find innovative ways to utilize the community and local environment within the classroom and provide students with real life problems requiring a team-approach. This is supported by Brears, MacIntyre, and O'Sullivan (2011), who suggest that pre-service teachers need to develop robust mental models and metacognitive skills that are transferable in order to meet the needs of an increasingly complex world classroom.

One such innovative step being taken at the school level is occurring in the Toronto District School Board, in their attempt to deliver curriculum in ways that meet a wide range of learner needs. The Oasis Skateboard Factory, part of the Oasis Alternative Secondary School, offers curriculum related to the design, building, and marketing of skateboards. The program has had a very high success rate for students who were previously disengaged from education (Pearson, 2015). In this innovative environment, teachers are required to provide education that meets the real-world goal of entrepreneurship and creative design and, in doing so, they are fostering transferable skills that can be carried beyond the classroom.

As a result of innovation occurring in schools, the manner in which university programs approach the practicum experience, arguably one of the most important elements of teacher preparation (Franklin Torrez & Krebs, 2012) will need to be equally as innovative. One such technique being utilized by teacher education programs is the paired placement. Paired practica often result in a supportive learning environment that allow pre-service teachers to cultivate essential capacities, not only from their mentor teacher but from one another (Nokes, Bullough, Egan, Birrell, & Hansen, 2008; Walsh & Elmslie, 2005). Placements in traditional classrooms are likely to produce new teachers who teach in much the same way as their mentors, according to Hollingsworth (1989). MacKinnon (1989) points out that most pre-service teachers follow the lead of their mentor teacher and attempt to mimic his or her teaching style in order to avoid receiving a poor evaluation. Paired placements offer the

opportunity to be exposed to more than one teaching style, thereby allowing pre-service teachers to cultivate the necessary capacities of interdisciplinarity, co-learning, and creativity.

Finally, one way in which university preparation programs and school divisions can come together in the development of pre-service teacher capacities is through supportive participation in school-sponsored professional learning communities. Through collaboration and the active sharing of educational strategies, professional learning communities focus on improving teaching and learning outcomes for students and concentrate on what students should learn, how to know when they have learned it, and how to respond when students have difficulty (DuFour, 2004). Hoaglund, Birkenfeld, and Box (2014) point to the ability to contribute to a professional learning community in a collegial manner as one of the most important skill sets required of new teachers in the 21st century classroom. Through a partnership between school and university, pre-service teachers can be prepared for participation in the profession of teaching.

In Alberta specifically, numerous policy and supporting documents (e.g., Government of Alberta, 2010; Friesen, 2009) set out a vision for education in the province, in which all stakeholders play a role. This vision is focused on the principles of creating students who are engaged thinkers and ethical citizens with an entrepreneurial spirit; a vision sustained by teaching that is purposefully designed and assessed, that engages multiple partnerships and relationships and that seeks to eliminate the isolation traditionally associated with the profession of teaching (Friesen, 2009). In order to enact this vision, pre-service teachers must be prepared within the framework of a strong and dynamic partnership between universities and schools, which goes beyond the traditional classroom.

Methodology

The research presented here describes the 1st year of a 3-year study into the development of teacher capacities through an innovative teacher education practicum. Using a single-site case study design (Stake, 2006) intended to provide rich descriptions of pre-service teacher practicum experiences; this research used multiple data sources, including semi-structured interviews with the two pre-service teachers (see Appendix), their field experience portfolios, and promotional documents available to parents from the school and school division. All semi-structured interviews were conducted using a set of pre-determined questions; however, the interviews varied slightly depending on the natural progression of the conversation. All data was analyzed using thematic, holistic analysis (Yin, 2014). Within this thematic analysis, direct interpretation of the participant's interviews and detailed description of the experience (Creswell, 2013) were employed to ensure an accurate understanding of this preliminary data. Presented in this examination are themes consistent across all data sources with quotations from the semi-structured interviews intended to honour the pre-service teacher's unique descriptions.

The two pre-service teachers involved in this phase of the study provided informed consent; however, given the nature of the project, which involved a video, neither chose to remain anonymous. Both participants were able to withdraw at any time; however neither exercised this opportunity.

Site/Participant Selection

The case study site was chosen due to its implementation of the Building Futures program, a program that is both innovative and attentive to the real-world applicability of curricular outcomes. The participants in this study were both in the final year of an after degree bachelor of education program. As such, they had already completed two previous practicum placements in more traditional classroom

environments. Both of the participants were female, with little or no previous construction experience. Before placing the students in the innovative practicum site, the researchers in their roles as field directors met with the students to ensure that all expectations for the field experience course were clear.

Analysis

In the analysis of the semi-structured interviews, the field experience portfolios, and the promotional materials provided to parents, the researchers began by reading through all texts to form initial categories. Following this, categorical aggregation was employed (Creswell, 2013), in that a collection of instances were examined for overarching themes and patterns. This was done in two stages, with each researcher identifying themes separately from one another in a table and coming together later to verify those themes. From these initial themes, naturalistic generalizations were made as much as possible, given the preliminary nature of the study at this point.

Results

As the two pre-service teachers had completed their previous placements in more traditional classroom environments, they were able to compare and contrast their earlier experiences with those at Building Futures. In the analysis of the semi-structured interviews, which were supported by the field experience portfolios, four themes outlining essential capacities emerged as significant: the ability to develop community partnerships, to design and implement interdisciplinary learning opportunities, to position themselves as co-learners, and to develop personal investment in a community of practice. These themes were consistent between the two participants and highlighted areas they described as being of critical importance to their development as both teachers and professionals.

Community Partnerships

As the classroom was in the garage of a home under construction, there were a variety of visitors including tradespeople, builder representatives, the city planning authority, school board representatives, and interested parents. This made the task of teaching both richer and more complex. It provided the pre-service teachers with opportunities to draw on community knowledge and to implement these real world understandings into their lessons, an opportunity that is often difficult to attain in pre-service teacher practicum placements:

> I got to build a house. I got to know so many tradespeople, working with community professionals every day and just getting to know people. One week we had three different experts from the community come in. We had an editor come in to help the students create a magazine about the house. We had tradespeople and we had a city planner come in. And that's stuff we're doing. We're making the contacts. We're bringing them in. We're going out there and asking people for their time, which isn't always easy but it's been great. (Pre-service teacher 2)

Increased communication between parents and teachers was another unique element of the community partnerships developed in this placement. In our experience, communication with parents is often found by pre-service teachers to be a difficult skill to develop, yet in this placement the continuous interaction with parents provided the pre-service teachers the opportunity to develop these capacities over time. As parents had only two teachers instructing their children throughout the year, they appeared to feel more comfortable interacting with the teachers, resulting in a more natural and regular communication strategy:

> The parent communication here is completely different than the communication you have in a regular classroom because the parents can stop in whenever they want. They're constantly texting and calling the two teachers. . . . It's the parents and the teachers standing side by side. (Pre-service teacher 1)

Through the development of these community partnerships, both the high school students and the pre-service teachers were able to access opportunities for hands-on learning driven both by the community partners and the curriculum. While high school students built the house alongside

tradespeople, the pre-service teachers were able to see how valuable and effective real-world learning could be.

Interdisciplinary Opportunities

Wherever possible, the pre-service teachers made efforts to relate their lessons to the construction of the house. When teaching mathematics they were able to measure angles in the house. In social studies, the pre-service teachers designed projects that required their students to investigate creating a better community through globalization and urban planning. In order to cover the English curriculum for Grade 10, the students designed and published a brochure used to market the homes. The opportunity to understand the intersections between the different curricula and the real-world act of housing construction allowed the pre-service teachers to relate their lessons to multiple outcomes in a project-based environment:

> By being here I got to see the whole process. It's not just a lesson plan. Everything is so interdisciplinary. We're looking at things more holistically than we would if we were teaching science in a classroom. So here we're asking how we can integrate all of the subject areas more completely to make the most of the time we have. These kids are building and there are tradespeople and guest speakers in all the time. They have to do their classes so we have to be super efficient with their class time. If we can cover more than one class subject at a time then that's how we're thinking and I think that is way different than a regular classroom. (Pre-service teacher 1)

The benefits of the interdisciplinary, project-based environment also extended to the flexibility that this context offered. The pre-service teachers described a flexible environment that promoted project-based learning and resulted in a deep understanding of the curriculum and its implications for the community:

> Realizing how long the projects can take when it's project-based learning, its so worth it but in a traditional classroom you can't take one month of a four month semester to do a magazine. Wish you could but . . . you can't always. (Pre-service teacher 2)

Positioning Themselves as Co-learners

Despite initial hesitations about having a lack of knowledge regarding construction and little desire to work outdoors, the pre-service teachers found themselves quickly adapting to their classroom in the garage. As the Grade 10 students had been taking their classes on site since September, many had more construction knowledge than their pre-service teachers. This allowed the pre-service teachers to position themselves as co-learners alongside their students, a capacity for interdependent relationships, which is identified by Friesen (2009) as being a hallmark of effective teaching:

> Learning alongside the students has been great. We have a lot of flexibility because we teach for two to three hours at a time. So it means we have the opportunity to do some really great stuff. We don't have to stop because the bell rings and it also means that I get to learn alongside the students, especially when it comes to the construction because they will teach me how to do mudding and taping and that kind of thing. It switches the relationship and it builds collaboration between you and the students, not just other teachers. (Pre-service teacher 1)

As can be seen from the above description, the pre-service teachers were able to teach and be taught by the students, forming interdependent relationships that changed the nature of the student-teacher relationship. This was extended to the mentor teachers as similar interdependent relationships were noted here also:

> There is time in this placement to make mistakes. Because we all work together there is room for me to try something and if it fails then we all just move on. This afternoon I will be trying something more controversial and if it succeeds then great and if it doesn't then we'll all be fine. And that's because we can work together with more than one person in the room. (Pre-service teacher 2)

Developing a Community of Practice

One of the most notable findings revolved around a community of practice that had developed within this innovative classroom, involving not only the pre-service teachers and their mentors but also their students. As the two pre-service teachers were with their mentor teachers and the same group of students all day, they had opportunity to receive feedback from a variety of perspectives, including both

adults and youth. The pre-service teachers were able to really get to know the students and their learning preferences. As one of the pre-service teachers explained,

> I asked them [students] quite a bit if my lessons were engaging and interesting, because I was focusing on cities and economic globalization, and I'm well aware of the fact that it is not a party topic. So I tried to ask for feedback from a few of the students who didn't appear to be super engaged during my lessons. And I would just talk to them at lunch or while one of the other teachers assigned them a project. I just asked them, was that interesting to you? If it's not interesting, what can I do to make it more relatable to you? (Pre-service teacher 2)

The pre-service teachers both described this practice of receiving immediate feedback on their lessons as being an optimal way to improve their teaching practice. By forming a community with their students and mentor teachers, they were provided with the opportunity to personalize their teaching to better suit the varied needs of their students:

> These students need a lot of hands-on activities. I found that anything slow and dry wasn't working. A lot of the times they want to draw or create. Anything they were creating, they were very happy to do. I kept thinking, how can I make my lessons more interactive and hands-on? (Pre-service teacher 1)

The opportunity to receive immediate feedback and invest in a community of practice environment appeared to boost the pre-service teacher's confidence and allow them to take risks with their teaching that they might not have in a more traditional classroom environment.

Discussion

The essential capacities developed by the pre-service teacher participants in the initial stage of this research are identified in the work of Friesen (2009) as vital capacities for all teachers. In her work, Friesen outlines five principles of teaching effectiveness that underpin excellence in the profession. Each of Friesen's principles takes into account a number of capacities essential to teachers in the 21st century and each is measured along a continuum suggesting unlimited potential for growth. In undertaking their

field experience courses in this unique environment, the two pre-service teacher participants began their journey along these continua.

In gaining experience with the development of community partnerships, the pre-service teachers were able to practice principle four of Friesen's (2009) teaching effectiveness continuum, fostering a variety of interdependent relationships. Friesen notes four critical types of relationships, all of which are supported by and facilitated by teachers. They are "pedagogical (teacher to student); peer (student to student); community (student to others outside of school); and student to the subject disciplines they are learning about" (p. 6). In promoting an exploration of the curriculum that invited parents and community members to take an active role in education, these pre-service teachers were able to encourage relationships, not only with community members but also with the real-world application of their subject disciplines, through the linkages created by the task of building two houses. While perceived as a unique and value-added element of this placement, this capacity for building various kinds of relationships is noted by Friesen as critical for the success of the students in their classroom. "Relationships are critical in educating students not only for skills needed in the work place, but also in building social cohesion and producing minds that thirst to build knowledge throughout the course of their lives" (p. 6). This is supported by other authors who consistently argue that stronger relationships with community are crucial to education in the 21st century and that one of the most important purposes of education is to equip students for relationships that extend beyond the classroom to other aspects of life (e.g., Darling-Hammond et al., 2008; Den Boer, 2015).

The pre-service teachers continued to improve their teaching effectiveness consistent with Friesen's (2009) principle one, teachers are the designers of learning, and principle two, work students are asked to undertake is worth their time and attention. In describing their developing understanding of education as holistic, integrative, and flexible, the pre-service teachers evidenced an emerging

awareness of the importance of the "iterative cycle of defining, creating, assessing and redesigning that is essential in creating effective learning environments" (Friesen, 2009, p. 5). Through this burgeoning awareness the pre-service teachers were able then to provide both disciplinary and interdisciplinary learning opportunities not only worthy of the students time but often designed by the students themselves, similar to those described by Pearson (2015) at the Oasis Skate Board Factory. Through the connections offered by the construction setting and the commitment to community engagement fostered by the learning environment, the pre-service teachers were able to incorporate "disciplinary and interdisciplinary perspectives," and the work designed for students was "personally relevant and connected to the worlds in which they live, both in and outside of school" (Friesen, 2009 p. 5). In designing interdisciplinary lessons that relate to projects on the construction site, the pre-service teachers provided the opportunity for their students to engage in "authentic" learning tasks, which according Darling-Hammond et al. (2008) contribute to deeper, more meaningful learning.

In positioning themselves as co-learners and in their participation in a community of practice with one another and their two mentor teachers, the pre-service teachers in this study found themselves improving their practice in the company of their peers, principle five as outlined by Friesen (2009). Through discussion with one another, with their mentor teachers and with the students, the pre-service teachers were able to examine their own practice from a more objective standpoint. Stewart (2012) identifies positioning oneself as co-learner as essential for new teachers. The criticality of this becomes apparent when McKinsey and Company (in Friesen, 2009) note that "learning improves when teacher learning happens in the classroom, teacher leadership receives consistent support, and teachers have opportunities to learn from one another" (p. 6). The supportive learning atmosphere created by pairing these two pre-service teachers facilitated a community of practice where they were able to learn not only from their mentor teachers, but also from one another and from their students. Early teaching

experiences in a collaborative working environment increase the possibility that teachers will continue to operate in a collegial manner as they progress in their teaching practice (Nokes et al., 2008).

> It is critical for teachers to have a familiarity with one another's work that comes with frequent conversations of a professional nature centered on the work, access to each other's classrooms, and collaborative planning time. It is also very clear that as self-reflective as a teacher may be, receiving constructive feedback from one's peers is imperative in order to improve teaching. (Friesen, 2009, p. 6)

An environment where mentor teachers provide prompt, constructive feedback and pre-service teachers feel safe enough to take risks, yields the greatest learning for pre-service teachers (Franklin Torrez & Krebs, 2012). Pre-service teachers need to learn in an environment where they feel supported to try new teaching strategies and make mistakes without putting their practicum at risk of failure.

The pre-service teachers at the Building Futures site were able to participate in an innovative practica that provided them with opportunities to develop teaching capacities beyond what they may have experienced in a more traditional classroom. For the pre-service teachers described here, the opportunities presented in this field experience including utilizing community partnerships to create authentic, interdisciplinary lessons, positioning themselves as co-learners and participation in a community of practice, had real impact on their practice.

Conclusion

As teacher educators, we have experienced significant changes in education, enough to realize that preparing pre-service teachers to teach the curriculum is insufficient. Pre-service teachers must be prepared with the essential capacities needed for success in a constantly changing educational environment. Field-based learning offers unique opportunities for the development of these capacities. However, we must ensure that we expose students to the innovative practices they will be expected to employ. As such, teacher educators hold a responsibility to graduate teachers who are prepared for a

changing educational environment (Friesen & Scott, 2013). Twenty-first century teachers need to be flexible, creative and willing to design learning opportunities that connect students to real world problems. However, the reality of teacher training is, there is never enough time to cover all of the material we want to.

For this reason, the practicum can be the ideal opportunity for pre-service teachers to be immersed in the kind of learning experiences that lead to teaching effectiveness. In order to do so, pre-service teachers need to experience learning environments that allow them to be a part of a community of practice where interdisciplinary and collaborative opportunities are possible, for, as MacKinnon warned in 1989, the alternative will see pre-service teachers likely replicating outdated modes of practice and thinking. In this study, the two pre-service teachers flourished in an environment that required them to be designers of learning that not only related to the construction environment but were interdisciplinary and worth undertaking. They were able to accept the interruptions to the learning environment and turn those potential disturbances into an opportunity by including visitors in their teaching.

Whether on a construction site or in a more traditional classroom, the kind of learning experiences for pre-service teachers found at innovative teaching sites like Building Futures holds real promise for developing the essential capacities and effective teaching practice needed for the 21st century and beyond. In order to best equip pre-service teachers for the evolving nature of teaching, we must look beyond practica in traditional classrooms and encourage innovative experiences in non-traditional classroom environments.

Update

The two pre-service teachers in this study have both found employment with the Rocky View School District. One of the two became a teacher with the Building Futures project and the other holds a temporary teaching position with the board.

The authors have recently received ethics approval from the Rocky View School District to expand their research of the Building Futures project by speaking with mentor teachers, students in the classroom, and involved community members.

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Appendix

Field Experience III Questions

Pre-Placement Interview Questions

1. Why do you want to be placed in this classroom?
2. What do you think some of the challenges of this placement will be for you as a pre-service teacher?
3. What do you think some of the benefits of this placement will be for you as a pre-service teacher?
4. What kind of a teacher do you hope to be?
5. How do you believe children and youth learn?

Mid-Placement Questions

1. What have the challenges of this placement been for you?
2. What have the benefits of this placement been for you?
3. Have you discovered any new teaching methods as a result of this placement?
4. Have you discovered any classroom management techniques as a result of this placement?
5. What do you need to do in order to grow as a teacher over the next few weeks?
6. Have you made any mistakes in this placement that have taught you something about teaching, learning or about yourself?

End of Placement Questions

1. Have the challenges of this placement been different than what you originally expected?
2. Have the benefits of this placement been different than what you originally expected?
3. Which teaching strategies worked best for you during this placement?
4. Which classroom management strategies worked best for you during this placement?
5. What feedback did you get from students on your teaching or classroom management?
6. What did you do differently as a result?
7. How did that impact your teaching
8. How did the students respond?
9. Did you grow as a teacher? If so, in what way?
10. Have you made any mistakes in this placement that have taught you something about teaching, learning or about yourself?
11. What did you learn about yourself as a teacher from this experience?
12. Would you recommend this placement for other pre-service teachers?

Field Experience IV Questions

Pre-Placement Interview Questions

1. Why did you want to stay in this placement for Field Experience IV?
2. What are you hoping to learn or explore more deeply in this final placement?

Mid-Placement Questions

1. How has this second placement with the same class been different from your Field Experience III?
2. In what ways has this placement been similar to your Field Experience III?

End of Placement Questions

1. In what ways do you feel this placements experience has helped you to grow as a teacher?
2. In what ways do you feel this placement may have hindered your development as a teacher?
3. After spending 14 weeks in a non-traditional innovative teaching placement:
    a. Do you feel there are benefits to this type of placement?
    b. Do you feel there are challenges to this type of placement?
    c. What impact do you think the Building Futures Program has on student learning?
4. When you look through your journal what surprises you about your comments?
5. How has this experience shaped your teaching philosophy?

Chapter 08: Thinking with Theory in Teacher Education: Cultivating Critical Capacities through Bourdieu's Social Field Theory

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Abstract

In their technical-rational focus on knowledge and skills, teacher education programs can function to (re)produce an educational system that works to occupy teachers' time with studying learning theories and classroom pedagogical approaches to such an extent that modes of domination in the wider structures of schools and schooling are not even noticed, let alone questioned. In this chapter, we make an argument for building teacher candidates' critical capacities for thinking with theory by intentionally weaving social theories and theorists through teacher education courses. We discuss how we have introduced and applied the tools of Bourdieu's social field theory in our teacher education courses and field experience, with a goal for teacher candidates to build the capacity to move beyond technical-rational thinking and into noticing and critiquing the wider modes of domination that permeate schools and school systems. In doing so, we work toward realizing anti-oppressive education and a critically reflexive stance in our work as mathematics and social studies teacher educators.

Thinking with Theory in Teacher Education: Cultivating Critical Capacities through Bourdieu's Social Field Theory

In their technical-rational focus on knowledge and skills, teacher education programs can function to (re)produce an educational system that works to occupy teachers' time with studying learning theories and classroom pedagogical approaches to such an extent that modes of domination in the wider structures of schools and schooling are not even noticed, let alone questioned. In educational contexts, the belief that knowledge is objective and universal, rather than socially constructed is a means through which dominance is (re)produced. The social construction of knowledge creates necessary conditions for oppression in educational contexts. Sensoy and DiAngelo (2012) argue that "oppression is embedded within individual consciousness through socialization and rationalized as normal; once people are socialized into their place in the hierarchy, injustice is assured" (p. 45). Kumishiro (2004) suggests that these every day or "normal" practices in schools are what contribute to "racism, sexism, classism, heterosexism, and other forms of oppression" (p.1), and Leonardo (2009) maintains that, if education is perceived to be a site of knowledge transmission rather than knowledge transformation, modes of domination will remain unchallenged. Thus, there is a connection between the technical-rational focus on knowledge and skills in teacher education and the social reproduction of dominance and oppression in classrooms and schools.

For many years in our teacher education program at the University of Regina, technical-rational approaches to teaching were privileged above all else, particularly in pedagogy and methodology classes, curriculum classes, and certainly in associated field placements (Cappello & Tupper, 2015). Such approaches continue to be prevalent discourses in many teacher education programs. Hogan and Down (1996) propose that embedded in these technical-rational discourses are assumptions that there is "one best system," that teaching "involves the mastery of a pre-determined set of generic skills, that

teaching is “a politically neutral activity,” and that there is an artificial division between theory and practice. Hogan and Down further argue that technical-rational discourses reproduce the status quo by reinforcing a non-critical approach to teaching and learning (p. 51).

In her discussion of the struggles of two teacher candidates as they attempt to create meaning from their experiences in a high school setting, Britzman (2003) captures the ways in which technocratic logic shuts down possibilities for engaging in different considerations of teaching. Yet, many teacher candidates embrace technical-rational discourses because they reinforce previous experiences in K–12 education that affirm rather narrow considerations of what it means to teach well, what it means to be a “good” teacher. If teacher candidates can demonstrate proficiency with such skills as lesson planning, unit planning, behaviour and time management, assessment, and so on, they will have proven themselves classroom ready. Technical-rational approaches in teacher education are further reinforced through concerns about the measurement and monitoring of effective teaching. For example, when teacher candidates engage in field experience in K–12 classrooms, assessment by their cooperating teacher requires constant monitoring of teaching skills, so that the appropriate boxes may be checked on their evaluation forms and they may then move to the next stage of practice teaching. According to Selkrig and Keamy (2015), practices that reproduce an over-reliance on technical-rational understandings limit the possibility for deep and critical reflection amongst both pre- and in-service teachers. These authors argue that more and more, teachers are limited by narrow and prescriptive approaches to teaching that require compliance with predetermined standards that, at best, advance only superficial learning. Technical rationality, they argue, demands limited application of educational knowledge and basic curriculum principles. It does not foster a spirit of deep and critical inquiry in teachers.

Similarly, Loughran (2006) critiques technical-rational approaches as too narrow, as not requiring a deeper engagement with the diversities and complexities of learners in classrooms. And yet, as Smits et al. (2005) suggest, "there are stubbornly held assumptions about teaching and learning that still exist in many teacher education programs." This is partly because technocratic logic offers to "improve the quality of schooling for all" and includes the "science of testing" to "ensure efficient use of resources to produce the greatest possible bang for the buck" with respect to public funding of education (Mehta, 2013, p.3). Hogan and Down (1996) offer what might be described as an alternative pathway, a way of thinking about teaching that relies on "the emerging critical discourses of teacher education," which provide "not only the tools to critique the dominant training approach but a framework for rethinking our own work" (p. 62).

We propose that technical-rational approaches are partially perpetuated through an almost exclusive focus on studying and applying learning theories in teacher education. Learning theories, for the most part, have historically focused on individuals (how and why people learn the way they do), and generally have deep roots in psychology, psychological development, and environmental influences on the learning process. For the most part, learning theories prioritize the cognitive and presuppose that the aim of education is for students to understand the content and learn for themselves. A more recent shift to an emphasis on *social* and socio-cultural learning theories in education (for example, social constructivism) has created spaces for more comprehensive models of learning, based not only in behavioural and cognitive aspects but also on social and cultural aspects of the learning process. Many of these learning theories still, however, focus primarily on the individual, individual differences between learners, and the learner's place in the system, often seeking to categorize and measure in order to make sense of students. A critical perspective is seldom embedded within the tenets of most socio-

cultural learning theories unless there is a deliberate shift toward more socio-political, in addition to cultural, concerns; on the other hand, this is where the strengths of social theory lie.

Research suggests that moving beyond learning theories and into social theories in teacher education can create spaces for critiquing wider modes of domination that permeate schools and school systems (Leonardo, 2009; Murphy & Costa, 2016). Social theory has its origins in sociology and philosophy, and focuses on understanding and critiquing the individual's positioning or social location within society (Murphy & Costa, 2016). Making social theories more prominent in education has the potential to shift the focus to "themes such as the nature of social life, the relationship between self and society, the structure of social institutions, the role and possibility of social transformation, as well as themes such as gender, race and class" (Murphy, 2013, p. 4). Murphy (2013) describes approaches of contemporary social theories as "heirs to the tradition of social philosophy," a tradition which "took as its aim the use of philosophy to examine problems in society" (p. 5).

In teacher education, it may be that contemporary social theory is not frequently drawn upon because it is seen to be "far removed from the modern world of teaching practice that is embedded in concerns over performance, attainment and accountability" (Murphy, 2013, p. 3). This modern world of teaching practice is often referred to by teacher candidates as the "real classroom" and it compels students to demand that teacher education programs provide clear directives and techniques to address these concerns of performance, attainment, and accountability. We propose that, by introducing social theory in teacher education courses and field experiences, students might be supported in making a shift from discursively producing the university and teacher education as out of touch with "real" classrooms toward understanding why schools are resistant to discourses that seek to disrupt normalizing schooling practices.

Thus, in summary, we make an argument for building teacher candidates' critical capacities for thinking with social theory so that they might be better equipped to notice and unpack the sociopolitical contexts of schooling; to critique narrow and prescriptive approaches to teaching that demand compliance with predetermined standards; and to cultivate a spirit of critical inquiry as they engage more deeply with the diversities and complexities of learners in classrooms. We believe these critical capacities for thinking with theory can be generated by purposefully weaving social theories and theorists (for example, the work of Bourdieu, Foucault, Habermas, Derrida, Butler, Kristeva, and Deleuze) through teacher education courses. In particular, in this chapter, we discuss how we introduce and apply the sociological tools of Pierre Bourdieu in our courses to study and unpack the sociopolitical contexts of schooling.

Context and Background

This chapter emerges out of studying our practices as teacher educators and researchers (Nolan & Tupper, 2013) and, in particular, out of our desire to invite students (and ourselves) into Bourdieu's social field theory. This invitation, we hope, offers a means to teach innovatively and ethically in the midst of the many complexities of classrooms and schools, and in a context where technical-rational discourses are pervasive.

In recent years, educational research, and the field of teacher education, have been drawing more and more on the theoretical constructs of, among others, Foucault, Lacan, Derrida, Gadamer, and Bernstein (Beach, 2011; Brown, 2008; Dimitriadis & Kamberelis, 2006; Walshaw, 2007). In fact, Walshaw (2008) suggests that "the theoretical resources available for explaining participation in and engagement with teaching practice are considerably more expansive than at any previous time" (p. 119). Hence, Bourdieu's conceptual tools are but one valuable set that can be drawn from this deep and

expansive toolbox. We choose to draw on these conceptual tools in particular because the key concepts of Bourdieu's social field theory confirm the complexities of teacher education by focusing on the dynamic relationships between structure and agency within a social practice, pointing to the promise and possibility of social change through critical reflexivity. In our practice as teacher educators, we believe that Bourdieu's social theory can help us to understand why innovative practices in schools—and the educational theory and research that inform these practices—are often dismissed by in-service teachers, creating dissonance and tension for our teacher candidates in their school placements.

As teacher educators and researchers, a significant aspect of our practice involves conducting research on our teaching. Drawing on Bourdieu's social field theory, we both conduct auto-ethnographic self-study research into our work as teacher educators, including planning, teaching, and assessment in our curriculum courses in mathematics (Nolan) and social studies (Tupper), as well as in our roles as faculty advisors for teacher education field experiences. While we teach and research in distinct disciplines, the disciplines themselves are less relevant than our efforts to invite our students to think with social theory. We believe that such efforts transcend specific subject areas and may be taken up broadly by teacher educators in various contexts. As is common in educational research, we collect data *from* our students for our research, and thus end up theorizing *on* our students as we analyze the data, but seldom do we theorize *with* our students for our research. In this paper, we address the question of how we can make the shift, as teacher educators, from theorizing *on* our students (using the work of Bourdieu) to theorizing *with* our students (using the work of Bourdieu). In doing so, we suggest that teacher candidates would build capacities to think beyond the technical-rational concerns of classroom management, pedagogical strategies, and standardized testing and into noticing and critiquing the wider modes of domination that permeate schools and school systems. Simply put, we are suggesting that

teacher candidates can achieve this shift of focus and intent through the tools of Bourdieu's social field theory.

Introduction to Bourdieu's Social Field Theory

The sociological tools of Bourdieu are many, and they are applied across a wide range of contexts, both within education fields and beyond (Murphy & Costa, 2016; Webb, Schirato, & Danaher, 2002). Specifically, Bourdieu's work offers a number of concepts and terms—namely, practice, field, habitus, capital, doxa, symbolic violence, and misrecognition—that allow us to understand teacher candidates' processes of becoming teachers. By understanding the dynamic roles of these key concepts and their complex interactions, social field theory can help illuminate issues of domination and reproduction in education. Indeed, according to one interpretation of Bourdieu's theory and social reproduction, "the role of schools is to make students believe that the existing social relations are just and natural and in their interests" (Webb et al., 2002, p. 113).

Bourdieu (1990a) claims that a person's habitus, or set of dispositions, in a social practice field (that is, a socially instituted and structured domain or space) are tightly bound up in and by the network of practices and discourses (relations) within that field. Field and habitus are central to understanding this social network of relations since the two concepts are produced and reproduced in relation to each other through social practice. The concepts of habitus and field are dynamic—always evolving, always partial, and never a perfect match for each other. However, a person will feel most comfortable in a field where her habitus is a good fit with the logic and operation of the field. The traditional (legitimate and sanctioned) discourses of the field "persuade" teacher candidates toward a comfortable, non-conflicting habitus–field fit in their classrooms and schools. In other words, "fields provide something like magnetic

attraction for agents who are disposed to engage in a given field (if their habitus is aligned to the field)" (Rawolle & Lingard, 2008, p. 732).

To better understand the interactions between habitus and field in a social practice, and to relate explicitly to the context of our work with teacher candidates in our teacher education courses, we limit the remainder of our discussion in this chapter to four additional Bourdieuian concepts: cultural capital, doxa, misrecognition, and symbolic violence. Our approach to discussing each concept includes first defining the concept in the context of its relevance to education, and then discussing the specific context of how this concept is brought into our respective curriculum courses (mathematics and social studies) and associated practices as teacher educators and faculty advisors.

Cultural Capital [Nolan]

Each of the agents/actors participating in the social practice of a given field is seen to bring particular resources or strategies, referred to as capital, to the domain, where (generally) "participation implies a shared commitment to the value of the activities of the field and of field-specific capital" (Warde, 2004, p. 12). Lin (2001) outlines a theory of social capital as one "eliciting the central theme that capital is captured in social relations and that its capture evokes structural constraints and opportunities as well as actions and choices on the part of the actors" (p. 3). Lin also proposes that "social capital is best understood by examining the mechanisms and processes by which embedded resources in social networks are captured as investment" (p. 3). Dimitriadis and Kamberelis (2006) express the dynamic relationship between these three concepts of Bourdieu's social field theory (habitus, field, capital) in stating:

> A field is thus defined primarily in terms of the kinds of practices that are common within it and the kinds of capital that may accrue to individuals who engage in those practices,

> and secondarily as the kinds of social relations that develop as people work to acquire and maintain the kinds of capital with the most purchase in the field. (p. 67)

According to Grenfell (2008), cultural capital is a synonym for status (or position), referring to the resources that one brings to (or has access to in) the field. Cultural capital "is a credit, it is the power granted to those who have obtained sufficient recognition to be in a position to impose recognition" (Bourdieu, 1990b, p. 138). When discussed in the context of teacher education, cultural capital would include "commodities" such as one's level of education, classroom experiences, grades/marks, classroom management skills, comfort with the script or logic of the field (i.e., a good habitus-field match), and so forth. In short, cultural capital includes all the things that help people gain access to, and position themselves strategically within, fields. In the case of teacher education field experience, there is a well-advanced script or logic of the field that confirms the significant cultural capital of the cooperating teacher. Once in the schools for their field experience, teacher candidates are "confronted with the task of learning the discursive codes of practice" (Walshaw, 2007, p. 124) in classrooms, and no longer in the university classroom. Interns identify their cooperating teachers as being much better positioned (than university faculty advisors) to initiate them into these practices and hence the practices themselves often remain unquestioned. If the university faculty advisor attempts to disrupt any of the dominant modes of practice in school classrooms into which teacher candidates are being initiated, she or he is reminded that cultural capital "is a credit, it is the power granted to those who have obtained sufficient recognition to be in a position to impose recognition" (Bourdieu, 1990b, p. 138). Teacher candidates make it abundantly clear that, while in field experience, cooperating teachers are more strategically positioned; they hold sufficient recognition and the credit to impose it (Nolan, 2015a).

In Nolan (2012), I draw on a Bourdieuian framework to propose that, in the social practice field of school mathematics, F1, the various scripts or logics of the field form a network of relations, where

the pathways in the network reflect the core of established and taken-for-granted practices. In teacher education—which represents a different Bourdieuian field, F2—the network is seen to be complex and challenging for teacher educators to disrupt or dismantle as they observe teacher candidates negotiating theory–practice transitions. There is a prevalent disconnect between university courses ("theory") and school-based practicum ("practice") that is discussed and addressed in teacher education field experience research (Bergsten & Grevholm, 2008; Malderez, Hobson, Tracey, & Kerr, 2007). To address the disconnect, research proposes models for field experience based in close university–school collaborative approaches (Reynolds, Ferguson-Patrick, & McCormack, 2013; Van de Ven, 2011), professional learning communities (Beck & Kosnik, 2006; Ferguson & Lindo, 2013), third spaces (Garrett, 2012; Zeichner, 2010), third culture (Cochran-Smith & Lytle, 1999), and spaces of *nowhere* (Grenfell, 1996):

> At the university, [student teachers] are eager to learn and qualify as teachers, but they are unsure of the mixture of academic and practical content of the course. In the school department, it is as if they are on loan. They are not really students but they are not yet teachers either. Moreover, they are unsure who is supporting them, when, and who is assessing them, and when. It is as if they are *nowhere*, as neither site provides a permanent anchor for their experience. (Grenfell, 1996, p. 297)

While I fully appreciate the value of research focusing on addressing theory–practice disconnects, I have found it desirable, in my work with teacher candidates, to capitalize on the notion of a new space—a third Bourdieuian field, F3— which is not all that dissimilar to the *nowhere* space called for by Grenfell (1996). Such a third Bourdieuian field can be conceptualized as a space of collaboration and dialogue on the processes of being and becoming a mathematics teacher. In terms of my research and practice as a faculty advisor, I endeavour to create such a space through the development of a new model for internship and faculty supervision that features a teacher–intern–faculty advisor (TIFA) internship learning community (Nolan, 2015b). Working together over a 4-month internship semester,

the key aim of the TIFA community is to engage in a professional development process that integrates aspects of lesson study, video analysis, and the *discipline of noticing* (Mason, 2002) in order to create a model for an alternative approach to the internship experience. The TIFA community creates an environment for working collaboratively, sharing experience, expertise, and multiple perspectives on teaching and learning in mathematics classrooms. It provides a space to explore teacher identity and agency in being and becoming a mathematics teacher, and I believe it does so by acknowledging that each of the agents participating in this social practice field (F3) brings particular resources or strategies to the field. Since the space reflects neither the field of schools (F1) nor the field of teacher education (F2), it holds promise for highlighting and deconstructing the various scripts or logics of fields that form the network of relations—that is, the network of pathways reflecting the core of established and taken-for-granted practices. Ideally, in this third field, no one agent is more strategically positioned than another; no one agent holds "sufficient recognition and the credit to impose." As a community, F3 provides opportunities to disrupt dominant modes of practice—practices such as direct teaching using a textbook, highly focused outcomes-based lesson plans, students writing notes and completing many practice problems—and the associated forms of cultural capital in school classrooms into which teacher candidates (and, for that matter, experienced teachers) are being initiated.

Doxa [Nolan]

Doxa can be thought of as the set of core values and discourses of a social practice field that have come to be viewed as natural, normal, and inherently necessary, thus working to ensure that the arbitrary and contingent nature of these discourses are not questioned nor even recognized. The meaning of doxa, or the doxic experience, lies in understanding that "most people, most of the time, take themselves and their social world somewhat for granted: they do not think about it because they do not

have to" (Jenkins, 1992, p. 70). The unquestioned acceptance of what constitutes normal, natural, and necessary is what Bourdieu refers to as misrecognition (Bourdieu, 1990b), a concept that will be discussed more extensively in the next section of this chapter. According to Deer (2008), "doxa allows the socially arbitrary nature of power relations . . . that have produced the doxa itself to continue to be misrecognized and as such to be reproduced in a self-reinforcing manner" (p. 121). While this description of doxa may seem to convey Bourdieu's sociology as overly structured and deterministic, Grenfell (1996) counters such a characterization by offering the following interpretation of networks:

> Individuals are embedded, located in time and space, which sets up relations. These relations are not simply self-motivated and arising from individual choices but immanent in the site locations in which they find themselves. Such relations are differential and objectively identifiable. They are structured structures, but, equally, structuring structures in a generative sense. (p. 290)

To view the relations as structuring structures means that becoming teachers *do* possess agency, albeit different forms of agency that are not quite as visible and explicit as those nurturing the (current) dominant school discourses. As an example, consider my recent research study with novice mathematics teachers (Nolan, 2016). In that study, I drew on Bourdieu's concepts of doxa, orthodoxy, and heterodoxy to situate the social spaces for habitus–field fits, including the discourses arising from habitus–field (mis)fits. The study offers an account of how two novice mathematics teachers (Andrea and Sandra) enact agency when negotiating their place within the powerful discourses of school mathematics. The data and interpretations of that study suggest that Andrea and Sandra recognize and confront habitus–field fits by devising strategies to follow a path that they perceive is different, not compliant—one that, in effect, constitutes a *field of opinion* to confront school doxa. In fact, Andrea and Sandra demonstrate considerable improvisation in the field through two particular agentic teacher actions: first, strategizing on the value of keeping quiet (an action that serves to work *around* doxa), and second, invoking

reflexivity on the dominant (an action that attempts to work *through* doxa). Together, these two agentic actions point to how Andrea and Sandra recognize school and mathematics classroom doxa (and its arbitrariness) and, in doing so, demonstrate the emergence of competing beliefs (heterodoxy). Their recognition, however, is mostly a silent one since the heterodoxy remains mediated by the ruling school and mathematics classroom doxa.

I propose that Nolan (2016) points to the promise of having teacher candidates work with Bourdieu's concepts of doxa (and orthodoxy and heterodoxy) in their teacher education courses to unpack the stories of these (and other) novice teachers. Drawing on Bourdieu's conceptual framework in teacher education courses could play a critical role in the education of teacher candidates—one that reveals (and subsequently challenges) the ways in which prospective and novice teachers silently work around or through the dominance of school doxa. Introducing a reflexive sociology, and the notion of competing fields of opinion, into the toolkit for becoming a teacher would make a substantive contribution to the field of teacher education. It would highlight how the social structures of a field both constrain and (re)produce the becoming teacher.

Misrecognition [Tupper]

As introduced above, misrecognition connects closely to doxa in that

> misrecognition relates to the ways these underlying processes and generating structures of fields are not consciously acknowledged in terms of the social differentiation they perpetuate, often in the name of democracy and equality. . . . As a translation of *meconnaissance*, however, *misrecognition* does not quite place the necessary emphasis on how a practice might be made ". . . invisible through a displacement of understanding and a reconstrual as part of other aspects of the habitus that 'go without saying'" (Mahar et al., 1990, p. 19). Such misrecognition operates in the education system, Bourdieu argues, through an arbitrary curriculum that is "naturalised" so that social classifications are transformed into academic ones. The result is that instead of being experienced for what they are i.e. partial and technical hierarchies), such social classifications become

> "total" hierarchies experienced as if they were grounded in nature. (Grenfell & James, 1998, pp. 23-24)

James (2015) writes that misrecognition

> refers to an everyday and dynamic social process where one thing (say, a situation, process, or action) is not recognised for what it is because it was not previously "cognised" within the range of dispositions and propensities of the habitus of the person(s) confronting it. Instead the thing is attributed to another available realm of meaning, and, in the process, interests, inequities or other effects may be maintained whilst they remain concealed. (p. 100)

An example of misrecognition in a social studies context would be the uncritical acceptance by teacher candidates of the dominant narrative of Canadian history as reflective of the country's past rather than as a carefully constructed series of events intended to invite particular ways of thinking about Canada. Similarly, misrecognition exists when teacher candidates believe that teaching is a neutral act (technocratic logic) or that curriculum documents are apolitical. Bourdieu does not make simple distinctions between conscious and unconscious knowing; rather, pre- and in-service teachers may at some level know they are not neutral in their teaching, but this "vague awareness" may not overtly influence, in conscious ways, their acts of teaching or their thinking about themselves as teachers. Drawing on Bourdieu's work, James (2015) argues that misrecognition operates in education to frame lack of educational achievement and success—not as a function of social location, but as an aberration that can be mitigated by removing barriers to learning or increasing learning standards for all students.

The continued privileging by some teacher candidates of technical-rational education is also an example of misrecognition. In this case, the almost singular demand in education classes for the instructor to focus on explicating teaching skills, such as classroom management orlesson and unit planning, diminishes and almost erases the need for teacher candidates to think critically about the ways in which educational practices and structures reproduce inequity. Rather than considering how taken-for-granted practices or teaching and learning competencies contribute to the marginalization of

particular groups of students, for example, technical-rational teacher education invites students to believe that the mastery of distinct skills of teaching will ensure the success of learners in the classroom. In turn, if a student fails, the fault lies with the student alone, rather than the teacher, who has exercised technical excellence.

In the context of working with social studies majors in teacher education courses, concerns about the mastery of prescribed curriculum content expressed by students prior to their field placement deflect from the need to interrogate the content they are being required to teach. Many of my students protest that I have not spent enough time on the elements of a lesson plan, allowing them to hone in on what is perceived to be one of the most important skills of teaching. They also express concern that not enough attention has been directed to best practices in classroom management. The persistence of these concerns detracts from the work of anti-oppressive education that philosophically orients our teacher education program at the University of Regina. Within this program, there are opportunities to invite our students into a deeper consideration about the role of educational systems and structures in reproducing inequity and privilege. As has been argued, Bourdieu's social theory provides possibility for the realization of the goals of anti-oppressive education.

Symbolic Violence [Tupper]

For Bourdieu, symbolic violence is the naturalization of power relations, which maintain inequitable social hierarchies and systems of classification that are arbitrary and historical (Schubert, 2008). It may be understood at least in part as "the violence which is exercised upon a social agent with his or her complicity" (Bourdieu & Wacquant, 1992, p. 167,). Symbolic violence operates largely at the level of the unconscious to ensure the domination of those who are subjugated; they are thus unknowingly complicit in their ongoing oppression or marginalization. Symbolic violence depends on

our use of language and persists when those of us who have membership in the dominant social group simply adhere to the "rules of the game"—when we fail to challenge the status quo. Most of us do not perceive symbolic violence because its effects are less overt than forms of physical violence, though certainly no less harmful, and in many respects even more harmful for its "victims" (Schubert, 2008). Symbolic violence is made possible by processes of misrecognition that perceive social systems/structures as legitimate.

Bourdieu describes the function of schools as not simply to teach and socialize students, but to "teach students *particular* things and socialize them in *particular* ways" (Schubert, 2008, p.188). With this in mind, it is important to be attentive to how symbolic violence operates in educational contexts to ensure the reproduction of dominant knowledge systems and, by extension, the maintenance of particular pedagogical practices. The perception of schools as meritocratic institutions where all students can learn and be successful if they just work hard enough results in symbolic violence for those students who are marginalized by the dominant system of education because of their race, class, culture, and so on. In Saskatchewan schools, and indeed in provinces throughout the country, the positioning of Indigenous learners as somehow deficient is also a form of symbolic violence. When teachers, as agents of educational systems, treat Indigenous learners as, for example, less capable, as less likely to succeed, as in need of remediation (when remediation is in fact not necessary), there is the potential for these learners to come to believe that they are in fact not capable of success in classrooms. In my view, this is the internationalization of oppression—sometimes understood as false consciousness—that symbolic violence produces. In turn, these learners come to perform in ways that are expected by dominant systems. Were teachers to understand not just learning theory, but also social theory, they might be better positioned to interrogate deficit thinking, to consider how their pedagogical practices naturalize power relations.

In my work with teacher candidates in social studies education classes, I have used the concept of symbolic violence to trouble both teaching practices and teaching content. I want students to consider, for example, how a curriculum that reproduces dominant narratives of the nation legitimates particular understandings of Indigenous–Canadian relations, which do not account for the effects of colonialism or racism for Indigenous peoples. I want to challenge them (and me) to grapple with how we are complicit in the perpetuation of symbolic violence in and through our teaching practices in social studies classrooms. This grappling includes posing such questions as, Do we participate in processes of racialization that seek to ensure the success of white students? What choices do we make about content and pedagogy, and do these choices perpetuate dominant knowledge systems? Do we view Indigenous students in our classrooms as less capable than mainstream/white settler students? Questions such as these have the potential to move students from a pre-occupation with mastering the skills of teaching (technocratic logic) to a deeper consideration of teaching as an oppressive act. Having said this, I have not been as successful as I would have liked in inviting my students to think with Bourdieu's social field theory. In previous iterations of the social studies curriculum class, I have described and provided examples of symbolic violence for my students to consider, but have not invited them into a more sustained inquiry into the connections between symbolic violence and our practices in social studies education. I have failed to capture the insidiousness of symbolic violence, that it is "everywhere in that we all live in symbolic systems that, in the process of classifying and categorizing, [we] impose hierarchies and ways of being and knowing in the world that unevenly distribute suffering and limit even the ways in which we can imagine the possibility of an alternative world" (Schubert, 2008, p. 195–196).

To support students in becoming anti-oppressive educators and imagining an alternative world of equity and justice—and to disrupt the technocratic logic that persists in teacher education—teacher educators must encourage teacher candidates to not only learn *about* social theory, but to learn *with*

social theory. In future iterations of the mathematics and social studies curriculum classes, it is our intent to be much more intentional and overt in our use of Bourdieu's social theory, working with students throughout the semester to understand and identify how the concepts of habitus, field, cultural capital, doxa, misrecognition, and symbolic violence work to ensure social reproduction in everyday contexts, including through our teaching and related practices as teacher educators.

Concluding Thoughts

Reflexive and reflective approaches to teaching and learning explicitly orient teacher education in the Faculty of Education at the University of Regina. Because these approaches are often in tension with a technical-rational orientation in teacher education (though certainly the two are not mutually exclusive), thinking differently about how students are invited into considerations of theory and understandings of practice are critical. With this in mind, and in light of power and knowledge reproduction, we continue to advocate a place for social theories and the importance of theorizing with our students in undergraduate teacher education.

We recognize there is much still to be done with the use of Bourdieu's social field theory in the context of teacher education and our work with our teacher candidates, particularly given the pervasiveness of technical-rational discourses. We are endeavouring to engage more in theorizing *with* our students, rather than *on* our students. However, we must be strategic in how much and how quickly we draw on social theory to critique educational systems that, we recognize, our students are deeply invested in. We need to consider the knowledge and experiences our students bring with them into our classrooms and the learning opportunities they have had in other courses during their first 2 years of the teacher education program. In turn, these considerations will inform how we position their engagement with Bourdieu so that they can think and act with his theory in productive and meaningful ways. It is

important to acknowledge that we need to work on reasonable access points for our students, given the highly theoretical nature of Bourdieu's social field theory (Nolan & Tupper, 2013) and on connecting Bourdieu's concepts to the negotiation of theory–practice tensions that emerge in undergraduate teacher education. For example, building on their engagement with anti-oppressive education practices in Years 1 and 2 of the program, we might ask our students to consider how the knowledge and pedagogical practices in mathematics and social studies curricula contribute to the very modes of domination that Bourdieu critiques. Ultimately, we are trying to create spaces for teacher candidates to develop a critical consciousness, so that they take up anti-oppressive education and take on critical reflexivity. We believe that Bourdieu's concepts of cultural capital, doxa, misrecognition, and symbolic violence (along with additional concepts) create multiple opportunities for theorizing our own engagements (individual and collective) with dominant practices, structures, and philosophies of education, helping us to realize anti-oppressive education and a critically reflexive stance in our work as mathematics and social studies teacher educators.

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Chapter 09: Three Exploratory Canadian Case Studies of Early Career Teachers: Developing Literacies as Emerging Pedagogies in the Content Areas

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Abstract

Drawing on a larger ongoing study, and using an embedded multiple-case design, we explore how three early career teachers' (ECTs) capacities for incorporating literacies into their teaching developed over 3 years; from their final term of Bachelor of Education (B.Ed.) studies to the end of their 2nd year of fulltime teaching. To identify how essential capacities are cultivated, we argue one must consider the importance of school context intersecting with the continued presence and development of essential capacities; in our case, as viewed through the ability to make use of literacy strategies as part of content area teaching practices. Three insights that emerged across each case demonstrated how ECTs: felt overwhelmed, initially, by the complexity of teaching, responded to the presence of mentoring, and how they adapted their pedagogy to particular disciplines in school contexts.

Three Exploratory Canadian Case Studies of Early Career Teachers: Developing Literacies as Emerging Pedagogies in the Content Areas

This chapter, drawing on a larger ongoing study of over 60 pre-service and early career secondary teachers' use of content area literacy strategies (Mitton-Kukner & Murray Orr, 2014, 2015; Murray Orr, Mitton Kukner, & Timmons, 2014; Murray Orr & Mitton Kukner, 2015), explores how three early career teachers' capacities for incorporating literacies into their teaching developed over 2 years. One impetus for our study was our curiosity about the influence of the B.Ed. program, particularly the Literacy in the Content Areas course, upon pre-service teachers (PSTs) and early career teachers (ECTs), as well as the impact of contextual challenges and conditions of their first full-time teaching positions. We wondered if and how an awareness of the relevance and benefits of use of literacy practices in their classrooms, gleaned from the course and program, would affect these new teachers' practices. The research question we investigate is: How do content area ECTs located in particular regions of Canada continue to develop their use of literacy practices in their 1st years of teaching, or, alternatively, discontinue those practices?

In the following sections, this chapter contains an overview of the Literacy in the Content Areas course; a review of the literature related to cultivating literacies, including content area literacies of ECTs in teacher education; the theoretical underpinnings of this study drawing upon Gee's (2001) conception of discourses and Shulman's (1986) pedagogical content knowledge (PCK); a description of the methods used in this embedded multiple-case study (Yin, 2014) of three ECTs from their final year of the B.Ed. program to the end of their first 2 years of teaching; a findings section with the three case

studies; and a discussion/conclusion that returns to the research question and theoretical framework to highlight key ideas and implications.

A Look into the Course: Literacy in the Content Areas

We teach sections of a course called Literacy in the Content Areas to approximately 30 PSTs each winter. Soon-to-be high school teachers in content areas such as mathematics, sciences, social studies, art, English, and physical education take this course. A course goal is to provide hands-on experience in the use of literacy practices to create instructional environments that optimize content learning. Many of these PSTs do not have a strong background in literacy, as their expertise is in a variety of content disciplines. Seminal to the construct of the course is its emphasis on three approaches: (1) writing to learn (Daniels, Zemelman, & Steineke, 2007) where pre-service teachers use a variety of methods to write, draw, speak, or otherwise to show their emerging pedagogical understanding of how to teach concepts and topics in different subject areas; (2) metacognitive reading strategies to support secondary learners in becoming more adept at closely reading dense texts; and (3) infusion of multiliteracies into the teaching of content areas with emphasis on navigating and producing visual, digital, and media works to support learning of concepts particular to disciplines. The message that teachers can use literacy practices to improve high school students' comprehension of their subject is delivered through course activities and assignments.

Literature Review: ECTs' Cultivation of Pedagogical Practices

An enduring two-part question in teacher education is: What are the most important things to teach in pre-service teacher education programs and what are the best ways to teach them? Dewey (1929) noted the need for programming that enables teachers to gain deeper understanding of how to deal with challenging situations, rather than arming them with simplistic formulaic responses. Since

Dewey's foundational work, many have contributed to the research into what should be essential in teacher education. Shulman (1986) identified three kinds of teacher knowledge: content, curricular, and pedagogical content knowledge. In a model that bears some resemblance to Shulman's, Darling-Hammond (2006) outlined what might be most important for teacher educators to focus upon given the complexities of 21st-century education, including "knowing deeply how people learn . . . understanding how to construct a purposeful curriculum . . . [and] understanding of and skills for teaching, including content pedagogical knowledge and knowledge for teaching diverse learners" (p. 303). Grossman et al. (2000) indicated that early career teachers actually increase and refine their use of pedagogical tools learned in teacher education programs after their 1st year of teaching.

In addition to teacher education programs, ECTs' practices are shaped by the contexts in which they find themselves in those 1st years of teaching, as well as by individual personality traits. Flores (2008) noted that both context and "idiosyncratic factors [such as] . . . motivation, willingness and commitment to teaching" (p. 408) are significant in ECTs' development. Flores found that 2nd-year teachers who perceived that they were improving their practice over time demonstrated "a growing focus on the pedagogical nature of their job (the how to teach)" (p. 407). With these characteristics in mind, we conducted our inquiry into how context and identity, as well as knowledge gained in ECTs' B.Ed. programs, may have shaped their literacy practices. In the following paragraphs we focus on the term literacy, or literacies, and the literature on content area ECTs' growth as demonstrated through their knowledge of how student learning is supported using literacy practices:

> *Literacy* becomes plural: *literacies*. There are many different social and cultural practices that incorporate literacy; so, too, do many different "literacies." . . . People don't just read and write in general, they read and write specific sorts of "texts" in specific ways. (Gee, 2007, p. 168)

Gee's broadened definition of literacy conceptualizes the multiple possibilities and situations in which individuals engage in literacy practices in relation to particular contextual constraints and expectations. An ongoing discussion in secondary schooling is the education of content area teachers, particularly regarding how they might fully incorporate literacy strategies into their teaching to help learners comprehend and make meaning of dense, discipline-specific texts (Stagg Peterson & McClay, 2014; McKenna & Robinson, 2014; Rowsell, Kosnick, & Beck, 2008). Despite the long-standing focus on content area teachers as teachers of reading and writing, scholars note that this has not resulted in noteworthy changes in how content area teachers approach instruction (Achieve, 2012; ACT, 2015; Colwell, Hunt-Barron, & Reinking, 2013; Curwood & Cowell, 2011; Fisher & Ivey, 2005; Sorgo, Verckovnik, & Kocijancic, 2010). Some attribute the lack of support by teachers to the generic approach of content area literacy, arguing that what is needed in secondary classrooms is advanced literacy instruction (Fang & Schleppegrell, 2010), and disciplinary approaches that are cognizant of the particularities of mathematics, science, and social studies (Fang, 2014; Hillman, 2014; Shanahan & Shanahan, 2008). The debate continues about how to better situate literacy practices within the content areas, leaving teacher educators with numerous possibilities when developing courses (Lesley, 2014) and ongoing professional development.

Content Area Literacy Instructional Capacities of ECTs

Two studies of perceptions of literacy teacher educators, teachers, and principals suggest that pre-service teachers in Canada receive inadequate instruction in the areas of teaching and assessing literacy (Botzakis & Malloy, 2006; Bruinsma, 2006) and that Canadian elementary teachers may be better equipped to teach and assess literacy than secondary teachers (Botzakis & Malloy, 2006). These concerns highlight the need for new approaches to teacher education in terms of engaging secondary teachers as teachers of literacies. Rowsell et al. (2008) call for a multiliteracies approach in teacher

education, to enable PSTs and ECTs to develop the competencies needed to support their learners in literacy development. In their explanation of the term multiliteracies, they include a great variety of forms of communication as literacies, "among school subjects, they view science, mathematics, history, art, music, etc. as literacies" (p. 112).

This chapter uses Rowsell et al.'s (2008) conception of multiliteracies as including (among many other types of expression) scientific literacies, music literacies, and math literacies. Gee (2005) noted that content area courses can help students master discourses particular to their disciplines. A variety of frameworks have been established to conceptualize how content area PSTs develop their practices within particular subject areas as noted through evidence of their abilities to adapt literacy-based instructional strategies to their disciplines (Fang, 2014; Hill, Ball, & Schilling, 2008; Hillman, 2014; Leslie, 2014).

In this chapter we show through three case studies how new school contexts can intersect with ECTs' understanding of how to infuse literacy into teaching in their content areas. In doing so, we provide insights into the relationship between participants' reports on experience in their former teacher education program and their reports on teaching experiences in their new school contexts, and explore in particular how this relationship may influence their developing pedagogical content knowledge (PCK) (Shulman, 1986) as viewed through accounts of their teaching in the first 2 years.

We have, for several years, been focused on the evolution of ECTs' literacy practices as they graduate from our program in Nova Scotia and move on to new teaching positions located across the country. B.Ed. graduates in Atlantic Canada must often go outside the province to find work. Many of them attain teaching positions in western or northern Canada ("Teachers in Demand," 2014). This geographic mobility has major curricular implications for both teachers and students, as ECTs encounter curriculum requirements and school contexts that may differ significantly from those they are familiar

with in their home province. The development of approaches and tools with which to address this likelihood is key for teacher educators in Atlantic Canada and potentially other regions of Canada.

Theoretical Framework

Drawing upon Gee's (2007) research, we hold a sociocultural perspective on literacy that "ties language to embodied action in the material and social world" (p. 714). Similar to Gee, we hold that literacy is relevant across disciplines and is about the ability to "use language to think about and act on the world" (p. 714). To understand language and literacy in sociocultural terms, Gee (2001) conceptualized a set of tools as a way to analyze literacy events in authentic contexts. His article was designed to counter the narrowed focus on literacy as a set of psycholinguistic skills only that has shaped American (and to some extent Canadian) educational policies. Gee showed through a variety of examples how becoming literate is as much to do with understanding one's context of home, school, and other sites as it is about processing skills such as decoding print. Of Gee's four tools (discourses, social languages, genres, and cultural models), of particular importance to our work is Gee's description of *discourses*, a frame of reference used to depict "ways of talking, listening, writing, reading, acting, interacting, believing, valuing, and feeling (and using various objects, symbols, images, tools, and technologies) in the service of enacting meaningful socially situated identities and activities" (p. 719). Gee suggests discourses may be perceived as "identity kits" (p. 719) in that an individual can "enact a specific identity and engage in specific activities associated with that identity" (p. 720). Discourses, or identity kits, provide a theoretical conception that enabled us to consider how early career teachers described using their growing understanding of their teaching contexts and their knowledge of curriculum and pedagogy to create opportunities for learners to engage in literacy practices in discipline-specific activities.

Pedagogical Content Knowledge

Since Shulman (1986) defined the types of knowledge that characterize teaching, including content knowledge, pedagogical knowledge, and pedagogical content knowledge (PCK), many other researchers have used and further developed these constructs. PCK has been described as "the knowledge needed to make subject matter accessible to students," with two main facets identified as "knowledge of students' subject-specific conceptions and misconceptions as well as knowledge of subject-specific teaching strategies and representations" (Kleickmann et al., 2013, p. 91). In our study into literacy practices of content area teachers we focus on the study of teaching of particular subject matter through a literacies lens, as described above.

There have been various adaptations of the theory of PCK since 1986, and while the above definition (Kleickmann et al., 2013) adheres closely to Shulman's original explanation, others have been developed which have relevant implications for our study. Hashweh (2013), for example, states:

> PCK is the set or repertoire of private and personal content-specific general event-based as well as story-based pedagogical constructions that the experienced teacher has developed as a result of repeated planning, teaching, and reflection on the teaching of the most regularly taught topics. (p. 121)

Teachers' "pedagogical constructions" are explained by Hashweh as "a set of entities and not as one whole unit" (p. 121), based on memories of past experiences or events and how that teacher has made sense of them over time. PCK, then, is a set of pedagogical constructions that evolve throughout teachers' careers, and is dependent upon both context and the ways that individual teachers respond to that context as a result of their beliefs and personality traits. PCK can be connected to Gee's (2001) notion of discourses as identity kits as we explore how ECTs in our study described making decisions about their use of literacies in secondary subject area classrooms, using pedagogical constructions based on several things: knowledge they had learned in the Literacy on the Content Areas course in their

teacher education program along with other knowledge they brought to their teaching, curriculum knowledge, and understanding of their students and context.

Methodology and Methods

Using an embedded multiple-case design (Yin, 2014), this paper purposefully examines three early career teachers' experiences over time. Yin describes how embedded multiple-case design includes "a set of cases with exemplary outcomes in relation to some evaluation question, such as 'how and why a particular intervention has been implemented smoothly'" (p. 62). He notes that cases with "contrasting situations" (p. 64) may also be chosen. Each case has its own context and the cases, taken together, can provide findings that enable further theory development. Yin argues that findings are strengthened when contrasting multiple cases are used, as this offers more possibility of theory refinement. In our study, each teacher represents an embedded case within its unique context (e.g. Northern Alberta, Northern Quebec, rural Nova Scotia), and we are developing theoretical understandings of how ECTs' pedagogical content knowledge evolves in three contrasting cases, in relation to their inclusion of literacies in their teaching practice.

Data Collection

We explore ways ECTs' discourses and developing pedagogical content knowledge over 2 years, as they completed the final term of their education program in 2013 and began positions as full-time teachers in different regions of the country, specifically Northern Alberta, Northern Quebec, and rural Nova Scotia. All three participants were students in our Literacy in the Content Areas course in the winter term of 2013. Our data sources include three interviews with each early career teacher, one in the spring of 2013, as they were finishing the final term of their B.Ed. program, one in the spring of their 1st year of teaching (2014), and one in the spring of their second year of teaching (2015) (see Appendix for the interview guide). A limitation of this study is its reliance on self-reporting through interview data.

We recognize there was the potential for unintended subjective influences in participants' descriptions of their teaching. That is, ECTs' accounts of their teaching may not reliably reflect the events in their classrooms. We acknowledge this as a shortcoming of the study.

We chose to focus upon these three participants from the over 60 we have interviewed and observed over the past 3 years because they are representative of the range of early career teacher participants in several ways: teaching areas (physical education, social studies and music, and math and science), geographic location (as noted above), and evidence of commitment to integrating literacies into their teaching practice.

Data Analysis and Representation

During data analysis we analyzed the three interview transcripts from each of the three ECTs, nine interview transcripts in total. The process of data analysis involved inductively analyzing as we read and re-read the data (Creswell, 2007; Merriam, 2009). Each author noted themes she saw emerging across interview transcripts, both within the three interviews with each ECT and across the three ECTs' interviews. After discussing these themes, we found some did not have enough data to support their inclusion in our findings. As we returned to the data we determined there were two themes for which evidence recurred repeatedly within each ECTs' set of interviews and three themes that were supported by evidence across the set of 9 interviews in total. These themes will be described in subsequent sections.

In representing the three embedded cases, we have employed elements of portraiture (Lawrence-Lightfoot, 1997) with its emphasis on attending to context as highly significant in interpreting meaning. We remind the reader that we attended to context as viewed through the descriptions given by the ECTs in interviews only; no field observations were made as it was not financially possible for us to visit the schools of these teachers. This approach involved listening for and retelling narratives as participants

describe their experiences, allowing us to illuminate the cases of Elizabeth, Don, and Kelly. We endeavored to document over time the growth of these ECTs as demonstrated by the relationships amongst ECTs' descriptions of their contextual conditions, descriptions of literacy-based practices in the content areas, and reflections on developing pedagogical content knowledge.

Findings: Portraits of Three Early Career Teachers

Focusing upon participants' understanding and reported use of literacy strategies in the teaching of their content areas provided windows into participants' discourses and emerging PCK, particularly in how they responded to the complexity of their new teaching contexts as viewed through descriptions of the pedagogical decision-making in which they engaged.

Elizabeth: Juggling and Succeeding Over Time in Northern Alberta

Talking success: End of B.Ed. program. Upon completing a successful final teaching practicum in the last year of her B.Ed. program in 2013, Elizabeth showed evidence of creating ongoing opportunities for students to show their learning over the course of units in physical education, health, and science in a middle school. During an interview on April 29, 2013, Elizabeth described her teaching as reflecting what she had learned the B.Ed. program, including key ideas from the course Literacy in the Content Areas, and she described creating learning activities for students that were designed to enhance deeper understanding of content. Elizabeth felt her use of literacy strategies enabled her to be innovative with her planning and assessment of student learning in health and science. She seemed particularly proud of her ability to include literacy-based strategies in the teaching of physical education (PE), and described the use of writing to learn strategies as supporting her assessment of

> baseline ideas of . . . students' understandings of the physical skills. . . . I also found that it was really helpful in getting information on the valuing and knowing outcomes. . . . I did a unit on cooperation . . . students complete[d] an exit slip on . . . how they felt they

> added to group work or how they felt they were a team player and what not . . . that allowed me to target [valuing and knowing] outcomes and [student] feelings.

At the end of her final practicum in 2013, Elizabeth seemed motivated to continue to use what she learned in the Literacy in the Content Areas course and identified connections between the course's "practical elements" and her understanding of all of the "strategies and resources that I can use" in her future classroom.

Talking failure: Year 1. The success Elizabeth experienced at the end of her B.Ed. program was reportedly challenged in her 1st year of teaching. Prior to a scheduled follow-up interview at the end of March 2014, Elizabeth e-mailed to say "I hope that I will have something useful to share with you. . . . I'm finding it hard to do all of the things I'd like to do in class" (Personal correspondence, March 4, 2014). Later, on March 12, during the phone call interview, Elizabeth described feeling overwhelmed by the busyness of her schedule.

At the outset of the interview, Elizabeth explained that the majority of her teaching was located in the gymnasium, as she taught several sections of PE to Grades 7–10. Elizabeth also taught character education to a Grade 7 class. In contrast to the successes Elizabeth had experienced with infusing literacy into the teaching of PE during her B.Ed. practicum, Elizabeth no longer seemed to see such opportunities for innovation. Elizabeth explained that she was "trying to keep my head above water and just meet the curriculum outcomes for the specific subject" and emphasized that she did not have "the time to really give a lot of the [literacy] strategies a chance in my teaching." Elizabeth attributed much of her busyness to her heavy involvement with extra-curricular school activities. Adding to her 1st-year confusion, she explained, was the PE department's approach to assessment and that she did not understand how "the assessment is run." At the end of Elizabeth's 1st year of full-time teaching, she

seemed to perceive her own pedagogical growth as having limited development, and struggled to identify discrete aspects of her own growth.

A return to talking success: Year 2. In contrast to Elizabeth's perception of her 1st year of teaching were the self-reported successes of her 2nd year in an interview conducted on May 25, 2015. Elizabeth was again teaching PE to primarily girls in Grades 7, 8, and 9 at the same school. Unlike the interview a little over a year earlier when Elizabeth could not identify instances where she had infused literacy into her teaching, she identified a variety of examples to show how writing-to-learn strategies were once again a part of her repertoire. Showing a greater understanding of the curriculum documents she was teaching, Elizabeth explained, "we have a lot of outcomes that need to be addressed through performance-based assessment . . . but there are several value outcomes [where] . . . I have been using self-evaluation tools to get at those outcomes [such as] exit slips." As Elizabeth described her approach to teaching PE in her 2nd year of teaching, we noted that she seemed more comfortable with her positioning in her school, particularly in the ways she described the collaborative planning that went into the teaching of PE, where literacy and formative assessment were foundational aspects:

> So we had a two-week unit where they [students] were introduced to some different styles of dance and . . . they created their own line dance. . . . The second piece [of the assignment] . . . was a group self-assessment. So as they were doing their choreography or working together in a group they were asked to evaluate how they were working together because we also have teamwork based outcomes. They had to hand in [a written piece on their group work] . . . to go along with the [written] piece that they created to show us what was happening behind the scenes [in addition to the performance].

Alongside these successes, Elizabeth also provided insights into some of the challenges she experienced in her 1st year explaining that her school was very large, with "25 homerooms," a situation which

impacted her formative assessment strategies, since “to collect . . . and to review a writing tool is pretty time consuming.” Elizabeth explained that she had learned to incorporate writing to learn strategies that worked within the constraints of her schedule. “I like the ones, like brainstorming or the quick exit slips or the written instructions . . . that we can do on the board and implement it right in class.” Elizabeth also identified instances where she incorporated the use of videos and photographs into her PE teaching. At the end of her second year, Elizabeth reported numerous successes in her teaching and explained that she had been chosen to become a physical education health and wellness mentor/consultant within her school district.

Don: Culturally Responding and Adapting to Students’ Contexts and the Infusion of Literacies

Talking support for the integration of literacies: End of B.Ed. program. Don, a social studies, music, and English teacher with an MA in history, completed his B.Ed. in 2013, after a final practicum at a small rural high school in Nova Scotia. Don enjoyed this teaching experience greatly and during an interview on April 29, 2013, spoke of emphasizing literacy, and writing in particular, in his history class. Don gave examples of using reflective writes, brainstorming and writing breaks (Daniels et al., 2007), and noted how these seemed to lead to improvements in student writing, as well as provide opportunities for assessment, including self-assessment. His dismay at the quality of writing he observed in an earlier practicum, combined with his awareness of the need to infuse more writing into content areas from his teacher education program, reportedly impelled Don to do just that in his final practicum in the teaching of social studies. He seemed pleased with the results.

During his practice teaching, Don described how his music classes gave students practice with a different type of literacy, and described fluency in reading music as an important literacy goal for his students. Don highlighted music in naming his future literacy goals, describing his interest in having students learn a variety of musical notations, “the language of music, so they can write [music] for

themselves." He also described his literacy practice in music as cross-curricular, in keeping with his social studies background. He concluded the interview expressing his satisfaction with his practice at this point in his teaching. "I felt like I was very successful during my whole practicum and in using literacy strategies." It seemed that Don was ready to move into his 1st year of teaching with a firm commitment to integrating literacies into his teaching.

Talking challenges in a new teaching context while attempting to maintain a commitment to literacies: Year 1. Moving to a teaching position in small Indigenous community in Northern Canada, where he was responsible for the teaching of several different subject areas to Grade 7 students, Don described challenges he experienced as he adapted to this new context in his 1st year of teaching. In a May 9, 2014, interview, Don talked of a number of issues he encountered in the classroom, due to "learning problems" caused by what he noted were high numbers of students "diagnosed with learning disabilities . . . [and/or] behavioral disorders." A tone of disappointment with himself was evident in Don's interview, as he mentioned feeling "like I haven't been able to do as well as I had hoped," when asked about what literacy looked like in his classroom. At one point he stated, "I feel like I'm an awful teacher because nothing I do seems to work with this group." He found he "really had to learn to adjust and it's very difficult to . . . to meet all of [the students'] needs at the same time." Despite his discontent with his ability to address all of the students' learning needs, Don described the strategies he was employing, such as the use of graphic organizers and brainstorms, and reading strategies like predicting, visualizing, and others that focused on reading comprehension. He noted, "I'm really trying hard with the literacy . . . especially after Christmas." At the same time, he showed an acute awareness of the relationship between the community's social, political, and economic struggles to his teaching:

> . . . the school is . . . symbolic of a battleground for . . . fighting against colonization and maintaining your cultural identity. So yeah, the context of this environment makes it

> especially challenging, but interesting. . .It just makes it so that, if you're aware of this, you understand.

Don was able to consider the struggles of learners in his classroom alongside the wider context of this Indigenous community, against colonization and racism, compounded by geographic isolation and economic woes. He noted near the beginning of the interview that he began an after-school music program and started coaching hockey partway through the year. Don's desire to get to know students outside the classroom and to be involved in the community was the beginning of a response to the challenges he encountered, a response that he articulated clearly after his 2nd year of teaching.

Talking renewed success: Adapting to the contexts of students in Northern Canada: Year 2. Don's perspective from the end of the school year in 2014 to the end of the school year in 2015 shifted in important ways. The tone of this interview was quite different from the previous one, with Don animatedly describing the music program and his classroom experiences, and engaging in reflection on the larger picture of the community context, politically, historically, and socially.

Don's teaching assignment in his 2nd year changed from having all Grade 7 classes to having Grades 7–12 for English language arts and social studies. His students were in two groups, a Grades 7–9 class and a Grades 10–12 class. When asked to talk about literacy strategies in his classes in his 2nd year of teaching, Don began by referring to his interview in May of his 1st year of teaching (2014), saying, "But I think what I failed to identify when I spoke with Jen was the majority of my literacy teaching . . . was teaching critical literacy and I really just tried to have them understand the world around them." Don went on to describe the importance of engaging students' prior knowledge from their community context to teach them to see multiple perspectives and think critically.

Don provided a detailed example of a social studies / English language arts inquiry unit of study he taught in his 2nd year using primary source materials such as photographs and documents about an

agreement that was signed with the provincial government by all Indigenous communities in the area except his. Not signing this agreement shaped the history of the community and the school. Don also incorporated recent tourism pamphlets that referred to the community's decision not to sign, and he had students talk with elders and family members in the community about their knowledge of this event. Don described the use of critical literacy practices in this unit, engaging students "to use the text and the photographs and their conversations with people in the community to . . . better understand why their community has not signed this agreement." He found that "using multiple ways of looking at something" was increasingly part of his repertoire of teaching approaches, due to the need to differentiate, but also because of the richer understanding he felt resulted from this approach.

It was evident at the end of his 2nd year of teaching that Don felt more confident and intentional in his use of literacy practices and that he had a much deeper understanding of the community context of his students and how to integrate this into his teaching. He described how his literacy goals had changed from his 1st to 2nd year. In his 1st year he "was really ambitious and eager to be very academic," but as he learned more about the context, he began to work to "meet them where they are" and make instructional decisions based on his knowledge of the students, both individually and as members of this particular community.

Kelly: Overwhelming Course Load but Persevering in Rural Nova Scotia

Talking literacy in math and science as important: End of B.Ed. program. Kelly emerged from her 2013 final practicum at a rural high school in Nova Scotia with firm goals for the use of literacy strategies in the teaching of math and science. During an interview on April 24, 2013, near the end of her final practicum, Kelly described a number of writing-to-learn strategies that she used successfully in a data management unit in her Grade 9 math classes, including a KWL as the unit began. She noticed that "a lot of the [students] wanted to learn about why or how they would be applicable in

real life," so she worked to include practical applications wherever possible throughout the unit. Kelly also talked about using a vocabulary square strategy,

> . . . where [students] were asked to talk about the different types of graphs. It was like an introduction to data management and they had previously learned about all of the different types of graphs in grade seven and eight so it was a review. . . I gave them the name of the graph and they had to give a definition of it. They had to explain how to use it and then had to do a little sketch.

Kelly found students kept the vocabulary squares for reference during the unit, so this activity provided ongoing support for students. She found that incorporating writing-to-learn "ma[de] it a lot easier for them to understand things," and that because of the success her students experienced using literacy strategies in her math classes, she was "kind of becoming passionate about doing that with math and science." Tied to this goal was her desire to make strong connections with "real life," as she felt it made it easier for students "to understand the concept if you can relate it to real life, so that's one of my biggest goals . . . [to use] real life examples." It seemed probable from Kelly's description of her use of literacy strategies in her practicum that she would continue to build on this practice in her 1st year of teaching.

Talking uneven use of literacy strategies across a variety of courses: Year 1. Kelly stayed in rural Nova Scotia to teach after graduation from the B.Ed. program, finding term positions in the school board near where she grew up. In an interview on February 19, 2014, she described the array of courses she had in this 1st year of teaching: Oceans 11, Science 10, Food Science 12, and math support in the 1st semester, and Chemistry 11and 12, as well as Food Science 12, in the 2nd semester. The interview was conducted late in the day and Kelly was at school long after the teachers, students, and support staff had left for the day. She indicated this was typical in this busy year. When asked if she had been able to

include literacy in her teaching this year, Kelly said she "found it a little bit easier when I was doing the foundation level[10] courses." Kelly had students write reflectively in response to writing prompts once a week about what they had learned, and she assigned 10% of the course grade to this writing. Kelly found this a valuable activity:

> [In Science 10, it] . . . was kind of nice because they were learning about applying to the concept like a chemistry concept or something and actually getting to write it out—what they had learned about it. I think really helped them to understand it.

Kelly returned to the belief she articulated at the end of her B.Ed. program, that applying concepts in writing-to-learn activities enabled deeper meaning making for students. She also used graphic organizers with success. "In oceans and food science [we did] concept maps a lot . . . just when we're talking about bigger concepts and trying to get [students] to break it down a little bit and understand." Brochures and "magazines" were other ways Kelly engaged students in these courses in writing to developing understanding of concepts.

Kelly admitted she found it "a little bit harder" to infuse her Chemistry 11 and 12 courses with literacy, because "there is a lot of math." However, she noted, "When we get into the theory part of it I think it might be a little bit easier." Kelly commented on the responsibility she felt to address all the chemistry outcomes well, since "there is so much that they need to know and [students] are planning on going and taking science at university." She found it "hard to kind of take a couple of classes and do more activities and things that are involving literacy," given the time constraint in her chemistry courses. She contrasted this to the "foundations" courses where "there is a lot more room to do that stuff [i.e. literacy strategies] . . . with the outcomes and you could kind of fit the outcomes around those."

[10] Oceans 11 and food science 12 courses are skills oriented, and the term "foundation level" is used in some Nova Scotia schools to denote these courses.

Despite having a number of new courses her 1st year of teaching, Kelly remained committed to integrating literacy into her classes, but there appeared to be a divide between her perceptions of how to do this in foundations versus academic courses.

Talking a return to confidence in infusing literacy in a more stable teaching position: Year 2. Kelly moved from high school to middle years in her 2nd year as an ECT, teaching Grades 7 and 8 math and science in a 1-year term position. At the beginning of the interview on May 25, 2015, Kelly excitedly reported she had just found out she would be getting a permanent contract with her rural Nova Scotia school board for the coming school year. She knew she would be teaching the same courses in the next year, which enabled her to think about her planning for each course on a longer-term basis. When asked about the literacy strategies she used in the 2014–2015 year, Kelly mentioned that although she was integrating a number of strategies, there were others she would add the next year, such as portfolios. Kelly described portfolios in her 2014 as a way for students to consolidate their learning. Since Kelly knew what subjects and grades she was to teach in the following year, it seemed more likely that she would be able to plan for their inclusion.

Reflecting upon her past year, Kelly described her use of reflective writing and math journals, literacy practices she carried through from her 1st year of teaching. Kelly made it a priority to ensure her students connected math concepts to "real life" applications; she found having students write in their journals created this opportunity:

> Most of the time the topic is to explain how what we learnt in class is relatable to real life . . . like we did one on probability . . . and they had to come with the different times they'd seen probability in the real world.

Kelly felt, once they got into the routine, students liked doing this writing in math class.

Because she was now in a middle school, Kelly taught students for a full year, rather than for 1 semester as in her high school teaching. She found this helpful because it allowed the students to adapt well to the literacy routines she set up in her classes, such as regular journaling and reflective writing. Kelly continued to use writing-to-learn strategies such as "KWL charts and concept maps and . . . brainstorming," integrating these literacy practices into her math and science lessons, but she was clear she wanted to do more, "like something bigger is what I'm hoping to get to . . . like inquiry-based learning, [or] . . . multigenre projects."

Nearing the end of her 2nd year of teaching, and with the recent news that she would have a permanent contract with her school board in a province where this was a rarity for an ECT, Kelly seemed more confident in her use of literacy strategies in her still-diverse teaching assignment. She was able to think ahead to larger literacy projects she hoped to include next year such as the use of portfolios. Working closely with the other Grade 7 and 8 teachers seemed to provide Kelly with support for developing creative cross-curricular teaching ideas, and for becoming involved in school-wide initiatives like the mindfulness program. Kelly's commitment to integrating literacy into her teaching remained constant, and it seemed her ability to embed literacy in her planning and teaching was growing steadily.

Discussion: The Ebb and Flow of PCK in Response to Temporal and Contextual Factors

Becoming a teacher is complicated and deeply interconnected with all of the complexities of school contexts (Beattie, 2000; Britzman, 2003). To identify how essential capacities, cultivated in teacher education programs, persevere in the early years of an ECT's career, we argue, one must consider the importance of school context intersecting with the continued presence and development of essential capacities—in our case, as viewed through the ability to make use of literacy strategies as part of content area teaching practices. With interest we note the confidence of Elizabeth, Don, and Kelly at the end of their teacher education program, upon completing 2-years of course work and 22 weeks of

practicum, in contrast to the reported struggles of their initial year and described return of confidence in their second year.[11] The reported confidence of the three participants at the end of their teacher education program suggests that, while they had experienced success in their practicum, they had yet to experience the classroom as the teacher solely responsible for all of its responsibilities in addition to their role within a school as an involved, active staff member. In many ways, each case revealed that the 1st year of teaching, regardless of where the participants were situated, was somewhat about survival, where Elizabeth, Don, and Kelly were busy keeping up with learning outcomes, understanding the policies and contexts within which they were teaching, and getting to know the learning needs of students. The ebb and flow of their confidence, particularly between their 1st and 2nd years of teaching enabled us to consider the connection, if any, between what was learned in the Literacy in the Content Areas course, our efforts to stay in touch with them in their 1st years of teaching, and the return of their confidence as described in the third interview. Three insights across the portraits of Elizabeth, Don, and Kelly related to feeling overwhelmed by the complexity of teaching, the role of mentoring, and adapting pedagogy to particular disciplines in school contexts.

Insight 1: Overwhelmed by the Complexity of Teaching

Looking across the experiences of Elizabeth, Don, and Kelly as they transitioned from their B.Ed. program into their first 2 years of teaching, we note the reported temporal and contextual challenges they faced. For example, all three commented on their lack of time in their 1st year of teaching and the busyness they experienced, as they attempted to effectively plan and assess while also being a part of extra-curricular school activities and initiatives. Repeated references to a lack of time, or busyness, suggested Elizabeth, Don, and Kelly struggled to transfer learning from their B.Ed. program into the complexity of new school contexts, and that, perhaps, they spent much of this 1st year trying to

[11] We noted our awareness of the flaws of self-reporting in interviews in an earlier section but highlight it again here, as we are aware that the themes we outline in this paper are somewhat tentative given this limitation.

understand unfamiliar timetables, policies, and practices. Both Elizabeth and Kelly noted the intensity of their schedules and how they often stayed late at school in the evenings to accommodate their workloads, and Don noted how his weekends were filled with extra-curricular activities. Repeated references to a lack of time suggest this 1st year of teaching was indeed a time of transition, as Elizabeth, Don, and Kelly needed to become more familiar with provincial curriculum documents as actualized within school timetables, policies, and practices in relation to student needs and provides some insights into the practice shock (Stokking, Leenders, de Jong, & van Tartwijk, 2003) they each experienced.

Prior to beginning their fulltime teaching careers, as indicated in the first interview, Elizabeth, Don, and Kelly seemed to think they were ready for their own classrooms and, as part of this, ready to make future instructional decisions, which, we suggest, were based upon the pedagogical constructions (Hashweh, 2013) they had developed during course work and practicum. Entering into their 1st year of teaching with discourses (Gee, 2007) shaped by their teacher education program and practicums, contextually different from where they were now located, provides insights into why and how their pedagogical constructions (Hashweh, 2013) were shaken as seen in participants' descriptions of their lack of confidence. The return of participants' confidence in their 2nd year of teaching may be attributed to their increased familiarity with where they were teaching, which, in turn, we propose, enabled pieces of those pedagogical constructions, developed in their B.Ed., to emerge in that 2nd year. Due to the impact that new school contexts reportedly had on all three participants, we note the importance of it in relation to ECTs' developing PCK, particularly in their 1st year of teaching.

Insight 2: The Role of Mentoring

While the participants described the use of literacies strategies to strengthen their teaching, we are mindful this only seemed to happen after initial adjustments had been made to new teaching

contexts. During the interviews, particularly the interviews which took place at the end of their 1st and 2nd years of full-time teaching, Elizabeth, Don, and Kelly, mentioned how they appreciated our efforts to follow up with them as it allowed them engage thoughtfully in conversation about their teaching and to consider their own growth over time. For example, Don noted in an e-mail after the interview earlier that day, "Being asked about what I am doing in my teaching is a good way of reflecting on my practice. It will help me improve as I move forward" (Personal correspondence, August 22, 2015). The interviews seemed to enable these news teachers to think about how literacies might be infused into the teaching of content and their relevance for student learning. It is possible that our follow up positively affected their willingness to embed literacies into their teaching practices. Although our efforts were related to our interest in the development of participants' PCK as viewed through their reports on how literacies, if any, were embedded into their teaching practices, we were struck by the unanticipated benefit of how our interviews seemed to serve a mentor-like role in enabling Elizabeth, Don, and Kelly to describe and inquire into challenges, successes, and concerns over time.

Scholars note that high quality induction and mentoring programs can help beginning teachers address the challenges they experience in the early years of their careers (McCormack, Gore, & Thomas 2006), helping them to mitigate misalignment between their ideals and realities and biased beliefs about their own capacities (Patrick, Elliot, Hulme, &McPhee, 2010; Malm, 2009). Mentoring can provide a sound foundation for beginning teachers and support their adjustment to their lives in schools (Jones, 2005). In short, collegiate support is critical. For example, in Scotland, Patrick et al. (2010) in their exploration of a national induction program for new teachers, found that formal mentoring coupled by informal elements such as collegiality, sound communication, and a welcoming environment fostered reciprocal professional learning between mentors and beginning teachers. Patrick et al.'s work points to how mentoring can create reciprocal learning for teachers at any stage of career development and how it

may also be effective in helping to solidify pre-service courses with methods used by ECTs in their first few years of teaching.

Insight 3: Adapting Pedagogy to Particular Disciplines in School Contexts

The third interview with participants featured a return to confidence as all three described successes in their 2nd year, some of which included their descriptions of infusing literacy into their teaching. Although scholars have found teachers tend to resist assisting adolescents with literacy learning in their disciplines because they assume that secondary school students arrive with fully developed literacy abilities (Alger, 2009; Gillis, 2014; McKenna & Robinson, 2014; Siebert & Draper, 2008) or do not feel prepared nor knowledgeable enough to incorporate literacies into their teaching practices (Cantrell, Burns, & Callaway, 2008), we note with interest how these three participants, despite their 1st year struggles, reportedly returned to the use of literacy strategies in their 2nd year (Anthony, Hunter, & Hunter, 2015). For example, Elizabeth understood how to assess value-based outcomes in the teaching of PE, Don identified critical literacy as informing student learning in a cross-curricular unit, and Kelly recognized the possibilities for student learning with the implementation of ongoing informal writing in math and science.

Participants' renewed confidence about their teaching at the end of their 2nd year, in combination with their descriptions of how they incorporated literacy into their content area teaching practices, encouraged us to reflect upon the course Literacy in the Content Areas. In the teaching of the course, we show through course readings, activities, and assignments how literacies are relevant across the disciplines in how they enable learners to decode the languages of disciplines and to act accordingly in those worlds (Gee, 2007) as scientists, historians, journalists, and mathematicians, to name but a few. A pivotal activity in the course was the focus upon writing-to-learn, metacognitive reading strategies, and multiliteracies in the assignment, Teachers Teaching Teachers (TTT), where pairs of pre-service

teachers from a particular subject area plan a lesson and engage their classmates in the learning of new discipline-specific topics using literacy strategies such as drawing and illustrating, quick writes, and close reading practices to process and make visible the learning of new content. Messages that are repeated throughout the course are “reading is thinking,” “writing is thinking,” “drawing is thinking,” placing importance on the idea that as teachers they have the opportunity to help their students deepen their learning while making it visible. Across the larger study, participants overwhelmingly have referred to the TTT assignment in helping to foster their understanding about the importance of literacy instruction in the content areas (Mitton-Kukner & Murray Orr, 2014, 2015; Murray Orr, Mitton Kukner, & Timmons, 2014; Murray Orr & Mitton Kukner, 2015). Because of the impact of this particular assignment, an opportunity for pre-service teachers to teach one another new content using the pedagogical tools learned in the course, we note the importance of creating authentic opportunities for pre-service teachers to apply pedagogy, as part of course work, as potentially influential upon their developing PCK not only during their B.Ed. studies, but also upon their PCK as it evolves in the early years of teaching.

Concluding Thoughts

To consider how the capacities essential for new teachers may be identified and cultivated within teacher education programs, we explored the experiences of three beginning teachers upon graduation from our teacher education program into their first 2 years of teaching. The participants interviewed felt they had learned how to infuse literacy into their content area teaching, although they initially struggled in their 1st year as they adapted to new school contexts, policies, expectations, and the needs of students. For all three participants, indicators representing tangible PCK growth in the use of literacy strategies were documented in their descriptions of formative and summative assessment practices, their ability to engage and motivate student interest in their learning, and their recognition of the importance of using

multiple ways to inquire and learn. Following participants into full-time teaching, as we did, suggests there may be value in faculties and colleges of education following ECTs in their initial years as a way to evaluate the quality of its programming and to remain connected with the challenges that emerge in the field for beginning teachers.

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Appendix

Interview Guide for Early Career Teachers

Start with neutral questions regarding their school year.

1. What are you teaching this year? What does literacy look like in your classroom this year?

2. Are you using any literacy strategies in your teaching? If so, which ones? How successful do you feel you are at implementing them? Why do you think that? If you not are not using any literacy strategies, what are the reasons for this?

3. How is your lesson planning (both daily and long-term) shaped by your knowledge of literacy strategies in math, science, and/or social studies?

4. How are your assessment practices shaped by your knowledge of literacy strategies in math, science, and/or social studies?

5. 21st literacy strategies can incorporate visual, digital, and media literacies. How have you been able to incorporate these in your teaching?

6. Does your provincial department of education and/or school board place an emphasis on the understanding that *all* teachers are teachers of literacy? How does this emphasis or lack of emphasis shape your teaching?

7. What are the long-term literacy goals that you have in your teaching position?

8. There is pressure on all science, math or social studies teachers to raise achievement levels. What place do literacy strategies have in school goals to increase these achievement levels?

9. What sorts of opportunities are there for you to work with other teachers on integrating literacy in your teaching? What sorts of professional learning opportunities are there for you in this area?

Optional: As a substitute teacher, you see a wide range of classrooms and grades. What sorts of literacy practices do you find most useful in your work? What do students benefit from?

Chapter 10: Negotiating Personal Knowledge on Professional Knowledge Landscapes: The Becoming of Teachers

Lynne Driedger-Enns
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Abstract

Typically, government competencies shape institutional goals for teacher education programs. In this paper we consider the experiences of a teacher as she participated in teacher education and began teaching. Exploring the key terms of narrative inquiry, personal and professional knowledge landscapes, and identity, we consider ways this teacher came to know children, herself as a teacher, and tensions as she negotiated diverse ways of being in the meeting of her personal and professional knowledge landscapes. By attending to the personal knowledge that shaped her professional identity and ways of being alongside children, our inquiry interrupts the dominant plotlines of concept attainment for new teachers. Foregrounded is an understanding of professional identity as always becoming.

[12] Dr. Driedger-Enns completed her PhD in 2014. During the 2015-2016 academic year she was the Horowitz Teacher Education Research Scholar, which is a postdoctoral position in the Centre for Research For Teacher Education and Development (CRTED), Faculty of Education, University of Alberta. Given the relational nature of narrative inquiry, Dr. Driedger-Enns has continued her postdoctoral research project during 2016-2017 and remains closely connected with the CRTED.

Negotiating Personal Knowledge on Professional Knowledge Landscapes: The Becoming of Teachers

Beginning in Anna's Experience

> I left the house many winter mornings wearing the mukluks my grandmother made for me. The intricate embroidery and brightly coloured beadwork stepped proudly on my feet through white snow on my way to school. When I could see the cement steps of the high school, I took off the mukluks and hid them in my backpack. School was not a place to claim my Métis heritage.
>
> In summer the pine trees called me home. Poplar trees lined the summer road; creaking floorboards in the farmhouse held my grandfather's memory. It was the place where grandma used to encourage us to get dirty. She encouraged us to explore and play outside. She talked with us while she tanned hides. Sometimes in the evenings, we played bingo at the hall. I remember sitting between the aunties and hearing their conversations as they talked and listened for the winning numbers. I learned to count as I stacked and lined up the bingo chips beside them. Summer at Ash Creek with my grandma and cousins was the place where I first learned what it meant to belong. (Excerpt from interim research text in Driedger-Enns (2016), p. 208, composed in fall 2015)

Anna[13] was in her 2nd year of teaching when she became a participant in Lynne's doctoral research. At that time, Lynne was puzzling over the experiences of early career teachers and invited Anna and another teacher into a narrative inquiry (Driedger-Enns, 2014). Often during their inquiry, Anna shared with Lynne stories of her experiences alongside her grandma and family who lived in Ash

[13] Anna chose this pseudonym for herself.

Creek, a small rural Northern Alberta community. As their inquiry unfolded, Lynne grew to understand that Anna's relationship with her grandma and family, what she learned and who she could be with them, in that rural northern place, shaped enduring threads in the stories around which she was composing her life, including her becoming as a teacher. As they inquired into these storied experiences, Lynne gradually understood something of the tension Anna experienced if she wanted to belong in other places and relationships, places and relationships shaped by different ways of knowing that left Anna feeling as though she needed to silence the life-shaping influences of her grandma, family, and Ash Creek.

In the summer of 2015, the Canadian Association of Teacher Education (CATE) announced their fall working conference, which in part focused on questions of teachers' capacities. We were particularly drawn toward the questions of the capacities of beginning teachers that are cultivated prior to, during, and following teacher education.[14] Collaboratively thinking with these questions, we storied experiences of how teacher knowledge is often reduced to a pre-determined, mandated list of competencies that teachers are expected to demonstrate.[15] Through our discussion, we began to wonder about the language of *capacities*: in particular, what it seemed to afford. The language of capacities felt as though it could hold open possibilities for understanding teacher knowledge as composed over time, in diverse places, situations, and relationships. Competencies, however, are often privileged as *the* knowledge against which teacher performance is measured. In Lynne's stories of Anna we felt this dominant plotline of teacher competencies at work. Staying with Anna's experience and tensions shaped the unfolding of our paper as we inquired into her knowledge as a teacher.

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[14] The two CATE questions which initiated our conversation were: 1) How are the capacities essential for new teachers identified and cultivated within teacher education programs? and 2) How do the capacities that are developed by teachers prior to and following their education program influence the education program?

[15] Common teaching competencies across Canadian teacher education programs include the need to: be a competent planner, be attentive to the learning of children, understand provincial curriculum guides, be able to access resources, be adept with assessment practices, and be proficient in many other practices related to the activities of being a teacher.

Situating Our Inquiry

Each of us is shaped by ways in which D. Jean Clandinin and F. Michael Connelly's scholarship makes central Dewey's (1938) theory of experience, particularly two significant aspects. One aspect is that "experience is the fundamental ontological category from which all inquiry—narrative or otherwise—proceeds" (Clandinin & Rosiek, 2007, p. 38). This understanding requires that narrative inquirers begin inquiry in a pragmatic ontology that values lived experience. The second aspect is that Dewey sees experience as both continuous and interactive. This is the idea that "experiences grow out of other experiences, and experiences lead to further experiences" (Clandinin & Connelly, 2000, p. 2). These ideas shape our understandings of teacher knowledge and our reasons for engaging in narrative inquiry (Clandinin & Connelly, 2000; Clandinin, 2013) as a way to study teacher knowledge.

Narrative Understandings of Teachers' Knowledge, Contexts, and Identities

As Connelly and Clandinin (1988) found themselves in the midst of differing plotlines of school reform while wanting to make central "teachers' life experiences and how they know and live out their lives in classrooms" (p. xv), they developed the conceptualization of "personal practical knowledge" as a way to "emphasize the teacher's knowing of a classroom" (p. 25). They wrote:

> Personal practical knowledge is a term designed to capture the idea of experience in a way that allows us to talk about teachers as knowledgeable and knowing persons. . . . Personal practical knowledge is a particular way of reconstructing the past and the intentions for the future to deal with the exigencies of a present situation. (p. 25)

Personal practical knowledge drew attention to the "dialectic between the personal and social within an individual's life, [yet] as teachers live their lives both in and out of schools another dialectic between the personal and the social was lived out" (Clandinin et al., 2006, p. 6).

Clandinin and Connelly (1995) conceptualized this second dialectic through the metaphor of a "professional knowledge landscape," which they described as follows:

> Understanding professional knowledge as comprising a landscape calls for the notion of professional knowledge as composed of a wide variety of people, places, and things. Because we see the professional knowledge landscape as composed of relationships among people, places, and things, we see it as both an intellectual and moral landscape. (pp. 4–5)

While teachers talked often of this dialectic Connelly and Clandinin (1999) sensed that teachers were also puzzling over ways in which "their contexts and knowledge were intimately woven into their stories of who they were and who they were becoming" (Clandinin et al, 2006, p. 8). They developed the conceptualization of "stories to live by," as a way to bring together teachers' personal practical knowledge, professional knowledge landscapes, and teacher identity. Stories to live by are continuously shaped and reshaped through the temporal nature of experience, through the interaction of the personal and the social, and in relation with a place or places. Attending to this "continuum of experience" (Dewey, 1938) in which a teacher's stories to live by are continuously shaped and reshaped, there is recognition that the knowledge held and made by teachers, including teachers beginning, does not start as they enter teacher education programs, just as their knowledge making continues once they leave a formal teacher education program.

These narrative conceptualizations and interconnections among teachers' knowledge, contexts, and identities gradually turned attention toward teachers who were beginning, particularly ways in which teachers shift the stories they are composing and living by with "stories to leave by" (Clandinin, Downey, & Huber, 2009; Schaefer & Clandinin, 2011; Schaefer, 2013). Puzzles around this shift in teachers' stories to live by returned attention to the earlier narrative conceptions of teachers' knowledge.

Inquiring into these puzzles, Clandinin, Schaefer, and Downey (2014) conceptualized "personal knowledge landscapes" (p. 163) as a way to understand teachers' personal practical knowledge, which is "shaped, and continues to be shaped, by our experiences off the professional knowledge landscape" (p. 165). Wondering if these "off the professional knowledge landscape places comprised another knowledge landscape," Clandinin et al. (2014) drew attention to ways in which teachers are composing their lives in both personal knowledge landscapes and professional knowledge landscapes as they attempt to "live out who they . . . [are], and . . . [are] becoming, in and across these two knowledge landscapes" (p. 179)[16].

As Lynne and Anna engaged in a narrative inquiry[17] Lynne was drawn toward understanding the personal knowledge in Anna's personal practical knowledge. As our paper draws on field texts from Lynne and Anna's inquiry, we more presently think with these in relation with puzzles around ways Anna negotiated her personal knowledge landscapes in her professional knowledge landscapes. Specifically, we inquire into Anna's tensions as her personal knowledge landscapes rubbed up against the mandated competencies around curriculum that were shaping her professional knowledge landscapes, which, in turn, shaped her stories to live by.

Engaging in Narrative Inquiry as a Way to Study Teacher Knowledge

[16] As teacher educators we are attentive to this idea of continuity by attending to preservice teachers' personal knowledge landscapes, the landscapes they live in prior to entering into and during teacher education programs and teaching. These landscapes indelibly shape their stories to live by, as both individuals, and as teachers. We are also attentive to Dewey's (1938) notion of interaction, as the evolving stories to live by of pre-service teachers are in continuous interaction with teacher education programs and these interactions influence their future experiences. Part of this, too, is shaping spaces for pre-service teachers to imagine their future interactions alongside children, youth, families, communities, and so on.

[17] As this is not a narrative inquiry methodology paper, we encourage readers who are interested in learning more about narrative inquiry to consider reading *Engaging in Narrative Inquiry* (Clandinin, 2013) and *Narrative Inquiry: Experience and Story in Qualitative Research* (Clandinin & Connelly, 2000). For deeper understandings of the particularities of Anna and Lynne's narrative inquiry please see *A Narrative Inquiry Into the Identity Making of Two Early-Career Teachers: Understanding the Personal in Personal Practical Knowledge* (Driedger-Enns, 2014).

As Lynne and Anna engaged in narrative inquiry, and as we engage in narrative inquiry in this paper, we work from an understanding in which narrative inquiry is both phenomenon and methodology:

> People shape their daily lives by stories of who they and others are as they interpret their past in terms of these stories. Story, in the current idiom, is a portal through which a person enters the world and by which their experience of the world is interpreted and made personally meaningful. Narrative inquiry, the study of experience as story, then, is first and foremost a way of thinking about experience. Narrative inquiry as a methodology entails a view of the phenomenon. To use narrative inquiry methodology is to adopt a particular view of experience as phenomenon under study. (Connelly & Clandinin, 2006, p. 375)

This understanding grounds our process of "thinking narratively" (Clandinin & Connelly, 2000, p. 44), which is key in narrative inquiry and entails thinking within the "three-dimensional narrative inquiry space" (p. 50). Thinking narratively with Anna's stories to live by, the three-dimensional narrative inquiry space shapes our understanding of her lived and told stories of experience as we attend across the narrative commonplaces of sociality, place, and temporality (Connelly & Clandinin, 2006).[18] As we gradually show, our thinking narratively with Anna's storied experience drew us toward new puzzles of her teacher knowledge.

Thinking Narratively With Anna's Stories to Live By

[18] As we engaged in the narrative inquiry shown in this paper these commonplaces drew our attention to Anna's experiences across time and place and the interaction of the personal and social as she experienced differing situations. Attending in these ways we are seeking to ". . . understand teachers, children, families, and community members as continuously living out the moments of their days by stories of who they are and who they are becoming. These individual stories entangle with, become shaped by, and shape one another. Similarly, the stories lived and told by children, families, teachers, and community members entangle with and become shaped by, while at times also shape social, cultural, institutional, linguistic, and familial narratives" (Huber, Caine, Steeves, & Huber, 2013, p. 227).

In this section we return to thinking narratively with Anna's experience. In doing so, we wonder if expected and mandated competencies as set out in teacher education programs could ever possibly prepare a teacher beginning for the bumping between their imagined stories of teaching and what they experience as beginning teachers (Schaefer & Clandinin, 2011). We see this bumping as part of the continuity and interaction of experience as Anna's personal knowledge landscape and professional knowledge landscape came together and how, in the meeting of these differing knowledge landscapes, she came to know her stories to live by in deeper, and possibly new ways.

Living Between Stories of Myself

> Every autumn my family moved from one urban place to the next for my father's employment. I made new friends in each school, even though I always felt different from the group—being the new person in the classroom with each move. Making my life in each new city was fraught with hard stories.
>
> The statistics about First Nations young women were my life. Nightmares itch my memory and animate my bones. My fair skin masked a thousand lifetimes of stories—stories of colonization—stories in which First Nations and Métis peoples faced discrimination in Canadian society. I walked hand in hand with racism as memories of emotional and physical violence left biting wounds that still crawl cold into my sleep and shape how I make my life. At the same time, a fierce pride for my Métis heritage was growing inside me. I think about my grandfather and the way people respected him in the community. People held him in high regard because of his integrity. Because of him and my family at Ash Creek, I wanted to belong as much as I wanted to be different from mainstream white society. I lived between stories of myself. I do not come to teaching from a sheltered life. (Interim research text, composed in fall 2015)

These plotlines of making new friends while feeling different, of knowing the reverberations of discrimination and racism in her own and her ancestors' lives, of pride in her Métis heritage, of the integrity of her grandfather, and, too, of tensions shaped by wanting to belong as much as wanting to be different, were each carried within Anna; they were experiences that shaped her stories to live by as she participated in teacher education and began teaching. Anna described that her living of stories shaped by these plotlines created ongoing dis-ease, which she spoke of often as living "between stories of myself." Anna often storied that it was in these *between stories* that she became more wakeful to the stories she lives by as she interacts with children. For instance, she often shared stories of the classrooms she hoped to co-make with children:

> As a teacher I try to see children and how they are finding their places in our classroom community. I respect their worldviews. I respect their families and how each person comes to school with their own unique life. I try to think about the child's family as I negotiate what it means to be a teacher in their lives. My classroom is not a competitive place of individual arrogance. It's a place of respect for diverse ways. I work hard at making it a place where every child matters. (Research conversation, Anna and Lynne, December 2010)

Thinking narratively with these stories Anna lives by as a teacher returns our attention to Anna's earlier shared stories of how and what she was taught by her grandmother and family, and ways that summers at Ash Creek supported her to experience belonging. Attending to the continuity of these interactions, however, we see that Anna's teacher education program, and the mandated competencies she experienced both during and following teacher education, paid little attention to how and what she came to know on her personal knowledge landscape. We wonder if the people who were part of Anna's

teacher education program were awake to her ongoing tensions as she attempted to negotiate her stories to live by, living between herself. Were there spaces where Anna could share these stories?

Anna's Memory Bag: Prioritizing Subject Matter Outcomes in Teacher Education

During their narrative inquiry Lynne invited Anna to collect memory box artefacts as a way to reflect on her experience in the teacher education program.[19] Anna kept her artefacts in a velvet bag tied with a cord drawstring. In one of their research conversations Anna drew on the artefacts as a way to story aspects of her experience. As she explained each item, Anna shared stories of ways that the teacher preparation courses positioned knowledge of government mandated subject matter outcomes as *the* priority in her knowledge as a teacher. Over time, as Anna took courses, each of which added another curriculum document[20] filled with mandated subject matter outcomes, she experienced this accumulation as increasingly overwhelming. Anna explained the pressure of responsibility she felt for meeting the outcomes in each curriculum document in the following research conversation with Lynne:

> So the [provincially mandated curriculum guides were the] bible [at university] in my curriculum classes; honestly I didn't learn much. I just kind of feared it a little bit, like the bible. It was the be all and end all of the craft. That's what I got from every one of my curriculum classes. We didn't really dive into them enough to really know them, but they are the map. The ELA [English Language Arts] alone is huge! And I would just think . . . "Oh my goodness!" and they kept saying, "This is your job. This is your professional responsibility." Being a student with five to seven classes at once, there were a whole bunch of them that I had to look at. So, then as they kept adding curriculum classes, I felt like they were weights. (Research conversation, Anna and Lynne, January 10, 2011)

[19] Memory boxes (Clandinin & Connelly, 2000; Clandinin, Steeves, & Chung, 2007; Huber, Murphy, & Clandinin, 2011) are made up of items that trigger a story from a person's life and support them to reflect on it.
[20] For example, in the province where Anna is a teacher, and in many provinces across Canada, there is a curriculum document for each of the seven subjects taught by most elementary teachers.

As Anna's story fragment illustrates, this over-reliance on outcomes, a focus on subject matter, interrupted her personal knowledge. Curriculum classes were the start of the over-writing of her personal knowledge and personal knowledge landscape with subject matter knowledge. In her experience with her grandmother, aunties, and cousins, learning was fluid and connected to her life. Learning did not weigh her down, rather it moved her forward within her life making: Anna learned to count in the bingo hall and alongside her cousins; she learned the joy of being outside, of play, and of conversation with her grandma; she also learned of trust and belonging in these fluid interactions. This life learning mattered for Anna, while she described her experience at university as one of "not learning much." As we now think narratively with Anna's experiences, we see this as a moment when Anna was learning to negotiate her personal and professional knowledge landscapes alongside one another, that is, learning to negotiate a way of being in which she was able to root her personal practical knowledge in a professional knowledge landscape.

> Anna pulled a small set of barbell weights out of her memory bag as she spoke about her experience with curriculum documents in her university classes. Each year several new subject matters were added and the curriculum guides became what she was preparing to teach. To her, it felt like learning about what subject matter to teach rather than expanding her experience of learning within that subject matter.
>
> As Anna continued to story her experience in teacher education, she shifted toward understanding the experience as more complex than the first artifact could show. Moving the bar bells to the side, she said, "No, it's more like this." She pulled out a handful of Lego bricks that fell into a haphazard pile.
>
> "It's more like a buncha bricks. I didn't know how these [mandated] curriculum [guides] could be connected; I knew they could be connected but I didn't know how. The

> different curriculum guides form different subject areas; they never taught us how to teach thematically but they told us we should." (Interim research text, composed in fall 2015)

For Anna the curriculum metaphorically took on the weight of bricks that lacked the connect-ability of Lego. Anna was consistently at the top of her classes academically, attended classes regularly, and was highly engaged through hours of study beyond the university classroom. Yet, as an undergraduate student in teacher education, she struggled with finding possibilities for connecting the volume of outcomes in the curriculum documents, and her experiences at university, to the particularity of her personal knowledge landscapes. While the weight of the bricks represents an exorbitant amount of content knowledge being gained, the disconnected nature of this content with her life, and in turn, with the lives of children, created many tensions.

Anna's Memory Bag: Awakening to the Lives of Children

Anna reached into her memory bag again, this time pulling out a figurine of a ball and chain. It was chained to the leg of a stick person. Pointing to the ball and chain, and then the angry stickman, Anna said:

> That's the curriculum if you are wondering. This is me, real pissed off like. And I really started to feel that way. Even though I had all this passion for integrating subject matter, I really felt like I had a ball and chain attached to me . . . held back . . . and I still feel that way in some ways. (Research conversation, Anna and Lynne, January 10, 2011)

As she talked, Anna's hands slowly scooped her memory bag items together so they were in a heap on the table; she then reached into the cloth bag and brought out a stopwatch:

> Here is another big one. As I tried to navigate the guide/documents, the learners I felt were also being held to the stopwatch. Parents and colleagues hold the stopwatch. I have

> parents who watch me navigate the curriculum. It's like I want to hand them the running baton, or maybe wear a wrestling leotard, and tag—with parents, it's all up to me. The old curriculum guide let me move as the learners directed me. We'd start off like in a point and they would wiggle it all over the place. But now this new document is law and I'm a little freaked out about that. And my admin professor said it was only a matter of time before legal precedence was set, because the old document was called a guide, and now we call it a legal document. So that's the messiness of it now. (Research conversation, Anna and Lynne, January 10, 2011)

What Anna showed us in these storied experiences is that to be a competent teacher, she was obligated to first fulfill mandated outcomes, to "demonstrate a professional level of knowledge about the curriculum" (Saskatchewan Professional Teachers Regulatory Board, 2016). And, because of how she came to know on her personal knowledge landscapes, she understood that competent teachers pay attention to the lives of individual children. As she continued to story her shifting experience with *the* story of mandated subject matter outcomes, Anna pulled out a passport: "So now I am thinking this . . . about curriculum making" (puts passport down beside the other items in the collage). "I still like curriculum to be a map, that we are going from A to B but how we get there is up to the learners" (Research conversation, Anna and Lynne, January 10, 2011).

Anna's words fill us with wonders about the capacity for personal knowledge landscapes in teaching. We see from the above storied fragment that Anna's shifting ways of knowing allowed her to negotiate her personal and professional knowledge landscapes, and in this way, her personal practical knowledge was beginning to allow for the coming together of the story of living *between the stories*.

To illustrate this we draw on Anna's reflection on an experience when a teacher explained how to integrate subject matter outcomes in the midst of an unfolding arts education and English language

arts experience with students. It was in this midst, this between, that the mandated subject matter documents began to make sense to Anna.

As Anna rooted her practice in her personal knowledge landscape, she was gradually able to experience narrative coherence between her personal and professional knowledge landscapes (Clandinin, Schaefer, & Downey, 2014). It was in this way that Anna began to understand that she needed to integrate and connect various subject matters with each other and with the diverse experiences of the children in her classroom:

> Well on Friday we were working on their flipbooks. They take their favourite childhood story and getting ready for a relationship with the book—we each make a flipbook with one of their favourite children's book. They already have a relationship with the book they choose. So then we made up the criteria together: it has to have a title, author, illustrator, your name on the cover page, other than that do whatever you like. (Research conversation, Anna and Lynne, February 12, 2011)

Anna shows here one way she slowly began to draw upon her personal knowledge landscapes as she began to infuse the mandated subject matter outcomes with the children's personal knowledge landscapes. This was a process where she gradually found connections between herself as teacher, the children as learners, and the curriculum guides as subject matter. Important to note here is the way Anna began with the children's experiences, with their personal knowledge landscapes:

> Yet they are constantly coming up to me and saying, "What should I do," "Is this OK?" . . . so much that I finally told them to freeze . . . and I said "I don't know what's going on in your minds . . . it's February . . . you know the criteria . . . tell me what's going on . . . why are you asking for my opinion? We have created criteria together . . . now it's up to you. I have been saying since August that if the particular way of representing something

> isn't your thing . . . like if you hate flip books, then find another way. Come to me with your ideas. As long as it meets the criteria . . . you can represent your ideas in a different way. You need to talk to your peers . . . get advice from them . . . I am one person." So they said, "We have always had teachers who have told us exactly what to do." They had never created criteria. They have always been given the criteria . . . usually written on the board or just verbally . . . maybe on a handout . . . but they were expected to remember it and then do what they are told. And I often say to them "go back to your criteria." That shed some light for me. This is new for them. (Research conversation, Anna and Lynne, February 12, 2011)

Anna's capacity as a relational person was her place of beginning and what she learned from an experienced teacher helped her understand how to connect curricular responsibilities of what counts with what matters. In this way, Anna was able to hold open a space for the diverse lives of children, while attending to the demands of a mandated subject matter document. Also in this way, Anna animated the call for beginning teachers to demonstrate "the skills and judgment required to apply this knowledge effectively" (Saskatchewan Professional Teachers Regulatory Board, 2016). However, Anna's shift to bringing together what she experienced at university, what she knew from her life experience, and what she was coming to know of the children's lives, shows the struggle and complexity of experiencing at least some continuity in her experiences across personal and professional knowledge landscapes. As Anna shows, this capacity was vital in sustaining her becoming as a teacher.

Learning to Live Her Personal Practical Knowledge on a Professional Knowledge Landscape

> Thinking about the way the curriculum document addresses Aboriginal and Métis perspectives, another mandate that is written in the curriculum guide, but in our lived curriculum we are still living racism. Then in the written document we are supposed to

> somehow treat this Métis perspective as part of subject matter. I have to find a way to integrate Aboriginal perspectives, from these resources that represent the heartbeat of Métis peoples, find a way to "fit" it into the curriculum. How do you fit a people's heartbeat into that curriculum? And that curriculum document is part of a legalistic world. I keep hearing the voice of my administrator saying, "It's a legal document." A legal document. It cements your footing, and you are no longer mobile or fluid. How can I, [a Métis woman], belong to that? (Research conversation, Anna and Lynne, July 2011)

As Anna gradually found ways to negotiate her personal and professional knowledge landscapes, she articulated more of the tensions she experienced as she lived out this competency alongside another competency of curriculum mastery, particularly when she felt the curriculum competency held potential to treat her people as "subject matter," an objectification that ignored the very "heartbeat" of herself, and her peoples. As a young girl, Anna learned that school was a place in which her identity was not welcome and, in this midst, she removed her mukluks before entering. However, she has held onto her story of her mukluks and it now informs the ways she makes space for her personal knowledge landscapes, which leads her to do the same for and with children. Anna does not ask children to take off their metaphorical mukluks when they come into the room but is wakeful about making spaces with children where they can bring all of their identities into the classroom.

What is poignant here is that people, their lives and experiences, are understood as subject matter. We see this as a profoundly important ethical tension. The professional knowledge here is the understanding that Anna's personal knowledge landscapes, that in her case include Aboriginal perspectives, are not an accumulation of facts. For Anna, her personal knowledge landscapes are a way of being. This being is, in her words, "a heartbeat" of a people, of her people, of herself. In this way we

see Anna living out an understanding shaped by her stories to live by in which *curriculum* is more than something read or talked about; it is something lived.

We see Anna's negotiating of her personal knowledge landscape in relation to a professional knowledge landscape as an illustration of what is understood by personal practical knowledge. While not listed in any provincial teaching certification documents, a teacher's personal practical knowledge is foundational to who she or he is and is becoming as a teacher.

Staying Attentive to Teachers' Shifting Stories to Live By

Thinking with Anna's stories, our specific intent in this paper was to inquire into tensions she experienced as her knowledge as a teacher became reduced alongside a pre-determined, mandated list of competencies that teachers are expected to demonstrate. In this midst, Anna experienced significant tension as her personal knowledge landscape bumped with the dominant plotlines shaping the professional knowledge landscapes of her teacher education and school contexts. In this bumping, Anna's personal practical knowledge was denied. Lessard, Schaefer, Huber, Murphy, and Clandinin (2015) gave a sense of this over-writing, or rewriting, of teachers personal knowledge in the bumping up of their personal and professional knowledge landscapes:

> As people who are becoming teachers enter into teacher education programs, we see their personal knowledge as holding a degraded epistemic status. Professional knowledge is seen as the most important in the professional knowledge landscape. Personal knowledge and the personal knowledge landscape are largely unknown or unseen in discussions of teacher education. . . . Being awake to others' personal knowledge landscapes creates attentiveness to how our own personal knowledge landscapes shape both our professional knowledge landscapes and our stories to live by. (p. 244)

Drawing on Lessard et al. (2015) alongside Anna's experiences, we see that perhaps an important aspect of teacher education is supporting pre-service teachers in the negotiation of the interaction of their personal and professional knowledge landscapes. Framing this negotiation as the shifting and shaping of teachers' stories to live by "allows us to understand how knowledge, context and identity are linked and can be understood narratively" (Connelly & Clandinin, 1999, p. 4).

Like Clandinin and Connelly we find the metaphor of a landscape works well as a way to understand teacher education programs and schools through its attention to landscapes as comprised of people, places, and things in relationship shaping moral and intellectual obligations. We do not see teacher education programs as the beginning of knowledge making for pre-service teachers. Rather, we see teacher education as an opportunity to begin understanding how our personal practical knowledge, developed across a lifespan on both personal and professional knowledge landscapes, shapes our stories to live by and, in turn, our teaching.

As teacher educators we try to remain awake to this negotiation in our interactions alongside pre-service teachers; we are also awake to the fact that teachers beginning will subsequently step onto the landscapes of schools and that these professional knowledge landscapes will likely be similar to, yet different from, the professional knowledge landscape of their teacher education program. We see that part of our work in teacher education is to support pre-service and beginning teachers to understand this meeting of their personal knowledge landscapes with professional knowledge landscapes. We know that as these landscapes meet, there is often bumping of ways of knowing and what counts as knowledge. We also know that this bumping creates tension, which preservice and beginning teachers experience as they revise their stories to live by as people who teach (Schaefer, 2013). Perhaps the ability to revise our stories to live by in sustaining ways as we negotiate our personal and professional knowledge landscapes is a competency in itself? While we know this negotiation will always be in the midst, thinking about

continuity and interaction shows us that the places Anna grew up, her grandmother and family, will always be important threads in her competencies, and who she is becoming as a person who teaches. As we begin to think with pre-service and beginning teachers about our capacity to negotiate the meeting of these often diverse and competing or conflicting knowledge landscapes, we see, too, that part of our work is the need for spaces where pre-service teachers and teacher educators engage in sustained conversation around how we might negotiate the bumping up of knowledge landscapes.[21] As we grapple with what matters and what counts, we see this work in teacher education as sustaining all of us, as people who teach (Clandinin, Schaefer, & Downey, 2014) and who make curriculum and competencies a course of life.

[21] We appreciate the editors' question: "What happens when there are 3000 Anna's in a program at a time all with their own personal knowledge landscapes?" We do not hold fast or easy answers to this question but wonder about the potential reverberations when beginning teachers experience sustained opportunities to inquire into the curriculum making they experience in teacher education, which is, in part, shaped in the meeting of the experiences and knowledge they bring to the subject matter and competencies that shape courses and field experiences. We imagine that inquiry into who we each are and are becoming in relation with these subject matters and competencies, in relation with one another, and in relation with children, youth, families, and communities holds potential for supporting ongoing growth and learning for all beginning teachers, teacher educators, and for the curriculum children, youth, families, and teachers might negotiate into the future.

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Chapter 11: What Should Canada's Teachers Know? How Beginning Teachers' Experiences in Rural Schools Should Shape Pre-service Teacher Education Programs

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Abstract

This chapter addresses the question, How do (or might) the capacities that are developed by teachers following their education program influence an initial teacher education program? Using data resulting from surveys, focus groups, and interviews with beginning teachers, we explore what beginning teachers working in rural schools say about the skills, knowledge, and beliefs they needed to develop in order to best serve their students and communities. Thematic analysis resulted in six related categories: (1) knowledge of pragmatics; (2) generalist or interdisciplinary knowledge; (3) knowledge of the unexpected or unanticipated; (4) knowledge and skills for professional networking and collaboration; (5) knowledge, beliefs, and skills for living in rural school and community culture; and (6) knowledge, skills and beliefs for handling isolation. Recommendations are offered about how such knowledge, skills, and beliefs could be included in and explored through initial teacher education programs.

What Should Canada's Teachers Know? How Beginning Teachers' Experiences in Rural Schools Should Shape Pre-service Teacher Education Programs

Introduction

To address questions about the knowledge, skills, and beliefs Canadian teachers need to develop during their time in pre-service teacher education programs, it is important that we listen to what in-service teachers say regarding their learning needs. In this paper, we will tackle the question, How do (or might) the capacities that are developed by teachers following their education program influence an initial teacher education program?

Our exploration of this question will first focus on what beginning teachers working in rural schools say about the knowledge, skills, and beliefs they needed to develop in order to best serve their students and communities. Based on these voices, we will then offer suggestions about how such knowledge, skills, and beliefs could be included in and explored through initial teacher education programs. This chapter relies on data gathered during our investigations into induction and mentorship approaches designed to support beginning teachers.

Description of Our Project

Context

The research team has been gathering data from a variety of related studies including a province-wide beginning teacher study and induction-by-mentoring projects conducted in several rural school divisions in Saskatchewan. The Beginning Teacher study included cross-sectional surveys of education graduates in Saskatchewan and case studies of new teachers (interviews, journals, day in the life of, focus groups, etc.) over a two year period. Case study participants were employed in schools in rural or remote

communities. The Beginning Teacher study confirmed the need to further explore models of new teacher induction in Saskatchewan and informed development of the induction-by-mentoring project (Hellsten, McIntyre, & Prytula, 2011; Hellsten, Prytula, Ebanks, & Lai, 2009; Hellsten & Prytula, 2011). For this project, the current research team worked collaboratively with rural school divisions to develop criteria for the identification of mentors and to recruit beginning teachers who were then matched with mentors. Participation as a member of a mentoring pair was voluntary and, to reduce travel costs and increase time in classrooms, every effort was made to select pairings based on proximity. We have recruited and gathered, and continue to gather, data on pairings working in rural elementary, middle years, and secondary classrooms.

While this project is primarily focused on examining the efficacy and sustainability of a particular type of mentorship approach in rural school divisions, data gathered provides important insights into the capacities (knowledge, skills, and beliefs) that beginning teachers say would have been important to explore and develop within their initial teacher education program.

Literature

Our approach to thinking about mentorship is informed, in part, by situated learning theory, which posits that cognition and learning are (a) situated in particular contexts; (b) social in nature; and (c) distributed across people, resources, and tools (Putnam & Borko, 2000; Greeno, 1997; Greeno, Collins, & Resnick,1996; Lave & Wenger, 1991). Situative theorists (Brown, Collins, & Duguid, 1989; Lave & Wenger, 1991) argue that cognition takes place within particular physical and social contexts which deeply influence how and what an individual learns—that what we know, how we know it, and how we express ideas are products of interactions with other individuals and within groups of people (Fish, 1980; Resnick, 1991; Putnam & Borko, 2000).

Our thinking about teacher education is informed by a relatively significant body of literature, representing studies that have explored the importance of listening to the voices of teachers in development of teacher education programs (e.g., Buchanan, Prescott, Schuck, Aubusson, & Burke, 2013; McPherson, 2000; Naylor, 2001). Additionally, in relation to our investigations into support for beginning teachers in rural schools, we are informed by studies that have explored the needs of teachers working in rural and remote schools (e.g., Grunewald, 2003a, 2003b; Hudson & Hudson, 2008; White & Reid, 2008; Page, 2006; Sharplin, 2002).

Studies that explore the needs of teachers working in rural schools have illuminated some important ideas that should be included in pre-service teacher education programs. For example, Sharplin (2002) suggests that initial teacher education programs help teacher candidates to become more familiar with the diversity of rural locations and to develop an understanding of the range of potential experiences through field experiences. Sharplin (2002) also suggests that coursework could

- explore the concept of isolation and diversity among rural communities,
- help build knowledge of issues related to rural lifestyles, and
- provide broader perspectives about perceived benefits and drawbacks involved in rural teaching (and rural life).

It seems particularly important that teacher candidates develop an understanding of the theory of "place" through a program that links learning in coursework and field experiences. The theory of place, as it relates to educational practice (place-based learning or place-based pedagogy), is a set of ideas that illuminates ways in which places are "profoundly pedagogical

… as centers of experience, places *teach* us about how the world works and how our lives fit into the spaces we occupy" that people make places and that places make people (Gruenwald, 2003, p. 621).

This body of literature helps us frame our understandings of the concerns and issues that face beginning teachers who work in rural schools, and this framework informs our analysis and interpretation of the data and the suggestions we offer with respect to reform of initial teacher education programs.

Description of Our Project—Processes (Methodology)

As indicated above, the research team has gathered data using cross-sectional surveys of education graduates in Saskatchewan and case studies of new teachers (interviews, journals, day in the life of, focus groups, etc.). In addition to this, data has been and is continuing to be gathered through scripted individual interviews, through focus group discussions, and from records documenting the experiences of participants, including blog entries.

To determine the knowledge, skills, and beliefs that beginning teachers think need to be learned and developed to support their practice in rural schools, thematic analysis was used to identify repeated patterns of meaning (Braun & Clarke, 2006) in the data. We attempted to ensure the coding of the transcripts and the interpretations made from the codes were constructed from the raw data contained in the transcribed responses to the interview questions (Boyatzis, 1998). Data from the records documenting the experiences of participants, including blog entries, were examined using a document analysis approach which includes skimming, thorough reading, assessing/interpreting, and the selection of excerpts and quotations that represent emerging themes (Bowen, 2009). The themes generated though analysis of the interview transcripts and participant documents served to integrate the data gathered from these different sources.

Beginning Teachers' Voices: What They Say They Need to Thrive in Rural Schools

Arising out of the data gathered in our project, we have identified six categories of knowledge, skills, and beliefs that new teachers said they needed so that they can best serve and thrive as professionals in rural schools: (1) knowledge of pragmatics; (2) generalist or interdisciplinary knowledge; (3) knowledge of the unexpected or unanticipated; (4) knowledge and skills for professional networking and collaboration; (5) knowledge, skills, and beliefs for living in rural school and community culture; and (6) knowledge, skills, and beliefs for handling isolation. Although beginning teacher participants were not always explicit in stating what they think would have been helpful inclusions in their teacher education program, their comments clearly indicate that their perceived lack or underdevelopment of particular knowledge, skills, and beliefs was a challenge causing, in many cases, great stress in their professional and personal lives. In the following section, we share examples of the voices of beginning teachers to illuminate each of the six categories that emerged during our analysis.

Knowledge of the "Pragmatics"

Perhaps one of the more surprising kinds of knowledge that new teachers felt they lacked is that which is related to the pragmatics or logistics of school life. While participants generally expressed confidence in their subject matter content knowledge and instructional understandings, beginning teachers were clear that the lack of understanding of the particularities of school or school division systems and logistics is a cause of concern. For example, one new teacher commented:

> I feel like for me it was mostly just practical questions. You figure out the content stuff as you go but it was practical questions. How do I use this computer system and how do I put in marks for this?

An exchange between new teacher members of a focus group reiterated this concern:

> How do you set up a grade book?
> Yeah it was just practical stuff that you needed to know.

While participants in our study understood that teacher education programs could not necessarily share knowledge about all school division systems and particular school practices, it is clear that their lack of knowledge in this area was a challenge that resulted in a great deal of anxiety and stress for them as they navigated their new career experiences.

Generalist or Interdisciplinary Knowledge

Teacher education programmes in Canada generally offer teacher candidates a "specialist" type of education, with the requirement that they choose to focus on teaching and learning at the elementary or high school grade levels (in some cases, the middle years level is offered as a choice, too). This specialist focus means that teacher candidates often engage exclusively with students in their chosen grade levels during field experiences and that they only examine the related curriculum (subject area content) of these grades. Teacher candidates choosing the high school route often only deeply examine content knowledge of two to three subject areas.

However, it is often the case that new teachers are offered and take positions that involve teaching students in grade levels unfamiliar to them. For example, one study participant related her reaction when she discovered her teaching assignment:

> I thought grade four, whoa, I'm trained for secondary so I have only had experience with grade seven to twelve so even to say that this was going to be maybe grade five, grade six French I thought, "okay that would be different," and then it was grade four as well so it was kind of surprising. . . .

Although beginning teachers did not explicitly state that teacher education should provide them with knowledge about teaching students across all grade levels, their comments clearly demonstrated the need for this knowledge:

> . . . when I got my teaching load I was in the same boat as [another new teacher focus group participant] where I've never taught a middle years group before. Like when I did my internship the lowest I went was grade nine and now I was under that. That was the biggest thing that I was worried about.

In addition, it is evident that new teachers would benefit from interdisciplinary knowledge, particularly as this relates to curricular content across grade levels and subject areas. Without this, beginning teachers find themselves in circumstances as described by this participant:

> I was very comfortable in those areas (subject areas chosen as focus in teacher education program), but I got a new course. . . . So I found then that I really struggled with how to do that.

To handle the lack of subject area / curriculum content knowledge another new teacher suggested:

> . . . just carving out some time would be great or I mean I know it doesn't happen all the time but once a month kind of thing just something so that we can meet and sit and bring the curriculum with us and bring the work with us because the biggest thing is diving into the curriculum and that's the hardest thing to do as a new teacher.

Comments made by beginning teachers indicated a need for interdisciplinary knowledge; at the very least, a perusal of all subject area curricula developed for all grade levels could have helped them to develop some sense of cross-subject knowledge prior to entering the profession.

Knowledge of the Unexpected or Unanticipated

While new teachers were certain that particular topics had been addressed in their initial teacher education (ITE) program—classroom management and the idea of difficult students, for example—they were clear that they did not have deep knowledge of the unexpected. For example, a participant commented:

> . . . what happens when you hit a snag with a student . . . and you're like, what do I do with this? I felt that was one of the big things right from the start of the year. Initially when that happened the first time or two and I like sat in my room after and I was like man what do I do with this student . . . ? I don't feel like when I came out of university that wasn't—I never expected, I don't know why. It's not something fresh in your mind but it's something that on a day-to-day basis you definitely have to deal with.

Some beginning teachers were explicit in recommending that ITE programmes be more strenuous in highlighting potential unsettling scenarios. For example, one participant suggested:

> . . . had I known that some of these things would become issues coming out of the [ITE programme] . . . have a meeting at the end of the year where you gather all of the people (teacher candidates) . . . saying, "You're going out to become teachers for the most part. This is what you probably are going to get." And you have an opportunity to, I guess to mentally prepare yourself. If you know that you could get maybe an administrator who isn't the best or if you know that you might end up in an environment that's completely different than anywhere you've ever been before. Like coming from [huge city] and going to [small village]. I think that that would probably be helpful. . . .

Knowledge of the unexpected does not require detailed information about each situation that could or could not be anticipated. Rather, development of this kind of knowledge requires sharing of information about potential disconcerting circumstances so new teachers are, at least to some degree, more psychologically prepared for their inevitable encounters with that which they did not foresee.

Knowledge and Skills for Professional Collaboration: Building and Sustaining Networks

In the past, teachers were often counselled to retreat to their own classrooms, to work alone with their students, and to guard their professional autonomy (Court, 2010). However, research has made clear the importance of social interaction and collaboration to enhance professional learning and practice. New teachers in our studies highlighted the importance of collaborative networks in supporting their transition into the profession:

> I think it would be even just honestly your first few days with your staff that you had somebody that basically whoever your admin was had kind of paired you up with and said these are people who either A) have taught this before and you can go and ask them questions about that because you've never taught it before, we get that or B) somebody who's taught that age group of kids or C) even somebody who is maybe been in your shoes in recent times.

Participants were also clear about their appreciation of the support they received from collaboration with beginning teacher peers:

> You phone someone and you talk with them for 10 minutes and that was enough of a supportive environment because people are in the same boat as you so they get it.

In addition, beginning teachers indicated there were changing expectations regarding professional collaboration, with some schools and school divisions asking teachers to work together in teams:

> So the five of us have a meeting once every six days in the cycle and that's when we talk with our team members like these are the issues that are coming up or something happened with this student or this kid had a better week this week and this is what we've been doing . . . we all get together and we say "look this is where we are, this is what we are doing." . . .

Beginning teacher comments made it clear that an explicit focus on knowledge and skills for collaboration in ITE programs would be of great benefit.

Knowledge, Skills, and Beliefs for Living In Rural School and Community Culture

Currently, the majority of teacher candidates in ITE programs have lived their lives in urban centres. The beginning teachers in our studies who share this personal history, highlighted their experiences of "culture shock" as they took up their professional role in rural communities. In some cases, beginning teachers indicated their explicit awareness of their lack of community cultural knowledge:

> I had no idea about farming culture and stuff like that and I was hearing like side conversations about a combine and I was like, what's a combine?

However, most of the beginning teachers told of moments of bafflement, which alerted them to differences in their cultural knowledge, skills and beliefs and those of their new community and school.

> . . . like in [huge city] it's very professional. You dress a certain way. Work is work. It's very different from here in the sense that you need to connect with your students. You need to have a bond with them. I was totally surprised when I was at an awards night and I saw a kid hug a teacher. And I was like, "That's not allowed." . . . And it's like so tacit that you can't touch it. You can't exactly say this is the way it is. You can't ask a question to find out. You know what I mean? It kind of just happens to you and then you go okay, I get it. . . .

Beginning teachers clearly called attention to ways in which their lack of cultural understandings lead to personal anxiety and stress. Similar to knowledge of the unexpected, learning the particularities of multiple schools' or communities' cultural knowledge and "ways of being" cannot be tackled by sharing detailed information about every situation a beginning teacher might encounter. However, new teachers could be better prepared to live in urban, suburban, and rural community and school cultures through learning experiences that support the explicit exploration of the reasons for cultural similarities and differences.

Knowledge, Skills, and Beliefs for Handling Isolation

As mentioned, teachers have tended to work in isolation from their colleagues, alone in their classrooms with their students. However, a new teacher often receives help and support from senior members of the teaching staff in schools where he or she works, reducing the feeling of isolation in her or his professional life, at least to some degree. Beginning teacher participants in our studies pointed out some particularities of life in rural schools that intensified their experience of professional isolation. For example, teachers in rural schools can find themselves to be a "department of one":

> This being such a small school, no one else teaches the subjects that I teach. If we had a cross division program where I could talk to another senior math teacher about "how would you teach this?", that might help too.

Without colleagues who teach the same subject areas or grades nearby, beginning teachers may feel the loss of opportunity to consult with those who they think could be of most help in tackling issues that arise in their professional practice. This sense of professional isolation can also emerge when beginning teachers work in tiny rural schools with few opportunities to connect with their larger professional community:

> I'm in a small school so I only, there's only two other teachers there, so you don't really make as many connections, and we had a couple division days at the beginning of the year, but everything is so overwhelming there and everyone's there; you don't really make that many connections.

At the same time, feelings of professional isolation among beginning teachers can arise out of their hesitancy to intrude into the work life of their senior colleagues:

> I felt very much alone in my staff. Um . . . everybody's busy in a school. You don't really wanna be asking too much of somebody else in the school. Everybody's already kinda got a full plate. . . . When I think back to my first year it was—tough—especially I was in a new community.

In addition to feeling isolated in their professional lives, beginning teachers expressed, as in the last sentence of the quotation above, their sense of isolation in their personal social life. Beginning teachers hired to work in rural school divisions indicated that it is not only their transition to a new community that exacerbates their sense of social isolation, but also that rural community cohesion can intensify their feeling of being an outsider:

> Everybody else is from here, and they kind of either grew up here and stayed here or else it's been so long that they're pretty well established.

Beginning teachers who had lived most of their lives in urban centres also indicated that their feelings of social isolation arose from their perceptions about the dearth of socializing options in their new rural communities:

> Well, from where I grew up in [other province], like I always thought I was growing up in a small town, but no. . . . So definitely a lot smaller where I am now. I'm living in [town name], so it's not the smallest town there's still everything there, but so there's not as much to do, like I know people say, "Oh have you gone out there and made friends"; well one of the girls I work with, but other than, I don't really know what to do around here, there's not much to do here.

Interestingly, beginning teachers not only shared feelings of personal stress that arose out of their feelings of social isolation but also revealed that life in rural communities can intensify feelings of social exposure:

> No gym, no running room, no people my age. A bar, but then you go to the bar and there's the parents and that's not good.

Beginning teacher participants in our studies were frank about ways in which feelings of professional and personal isolation affected their sense of efficacy and well-being. Helping teachers build their capacities to handle isolation could assist them in best serving their schools and communities.

How to Include and Explore These Capacities in an Initial Teacher Education Program

Based on the voices of beginning teachers who participated in our studies, there are six categories of knowledge, skills, and beliefs that should be included in ITE programs. We suggest that knowledge of pragmatics, the unexpected or unanticipated, and generalist or interdisciplinary knowledge, as well as knowledge and skills for professional networking and collaboration and knowledge, skills, and beliefs for handling isolation and for living in rural school and community culture could be addressed if the curricula of teacher education were designed using ways of thinking that go beyond "a 'classroom ready' focus to encompass a 'school and community readiness'" (White, 2015). We will discuss three ITE program elements that could be shaped by the advice gathered from beginning teachers working in rural schools, including: (1) on-campus study (coursework); (2) field study (practica); and (3) pedagogical approaches, with special focus on place-based or place conscious

learning. Interestingly, suggested ways of shaping teacher education programs based on beginning teacher advice gathered from our studies seems to match ideas about needed revisions to teacher education that are arising from recent research.

On-Campus Study—Coursework

An important way of building the knowledge of pre- and in-service teachers with respect to generalist or interdisciplinary knowledge would involve a revision of on-campus study to include courses specifically designed to connect with each other and with field study experiences in the exploration of foundational and interdisciplinary concepts and skills. Because educators need to develop an understanding of the interactions between the various subject matters and learners at varying stages of development, rather than "dis-integrated" subject area methodology courses only, on-campus study could include courses that explore, in integrated ways, methodologies, instructional strategies, planning and adapting, assessment and evaluation, and effective use of technology across all subject areas and grade levels. Such coursework could include examination of provincial curricula to determine the conceptual connections between subject areas and grade levels as imagined by K to 12 curriculum developers. Designing ITE programs in ways that explicitly demonstrate interdisciplinary and inter-grade connections is in line with recent research supporting this approach to learning (e.g., Drake & Reid, 2010; Jones, 2009; Fogarty, 2009; Drake, 2007, Youngblood, 2007) and would respond to the need for such knowledge expressed by beginning teachers in rural schools.

To highlight the need to discover the particularities of systems and logistics, methods courses or courses on assessment and evaluation could include a sampling of various report cards used by regional school divisions. In addition, ITE programs could build in opportunities for HR superintendents to conduct need-to-know orientations as part of exiting events for soon-to-graduate teacher candidates.

In addition, learning outcomes of on-campus study courses could specify the expectation that teacher candidates learn and practice collaboration and networking skills including, for example, the ability to define problems/issues and give and receive feedback tactfully, to observe, read, and use body language respectfully, to synthesize and expand on ideas shared by others, to listen actively and carefully, to negotiate and compromise, to seek consensus, and to ask good questions. These skills should be taught through direct instruction and could be practiced during completion of group projects and assignments. Explicit teaching and learning of these skills in ITE programs will not only help teacher candidates and beginning teachers establish and maintain collaborative networks that will help in their transition into the profession, development of these social skills and communication capacities will also assist in working effectively with students, in handling isolation, and in living well in schools and communities, rural or urban.

Another suggested addition to the on-campus study element of ITE programs is a specific course in resilience training, mindfulness or "contemplative practices" so that "teachers are supported with useful skills in managing difficulties and transition" (Impedovo & Malik, 2015). While there is limited research at this time into the benefits of contemplative practices for teachers (Bernay, 2014), there is a growing body of evidence that demonstrates how learning these skills and practices assists in reducing stress (Flores & Day, 2006), dealing with classroom pressures, and promoting personal well-being (Schoeberlein, 2009). In fact, some studies reveal that pre-service and in-service teachers who have taken even one course in mindfulness show reduced levels of stress (Flook, Goldberg, Pinger, Bonus, & Davidson, 2013; Poulin, Mackenzie, Soloway, & Karayolas, 2008). By including explicit mindfulness instruction in teacher education, teacher resilience can be bolstered, as can teacher capacities to handle isolation and the unexpected or unanticipated. With coursework that helps to equip teachers with strategic knowledge, skills, and beliefs for facing personal and professional challenges, ITE programs

would also support beginning teachers as they learn to live in rural (and urban) school and community cultures.

Including resiliency learning and mindfulness and networking knowledge and skills in a program can help build such capacities. But ITE programs also need to help teacher candidates understand that feelings of isolation are not simply a deficit symptom of rural life. The sense of personal and professional isolation in rural locations can be a function of "newness" experienced by everyone as they enter the profession—for example, as a person moves to a new community and into an unfamiliar school or work role. Teachers, both new and experienced, can feel isolated even in the midst of a large urban school and community, so skills for handling isolation are valuable for everyone.

With respect to coursework, it should also be noted that all courses do not need to actually be taught "on campus." Through consultation with educational partners, arrangements could be made for courses to be taught in off-campus locations like in an urban, rural, or First Nations school or community hall, in an alternative school (e.g., storefront school), or in alternative sites of education like local history museums, art galleries, or community outreach spaces. When courses are taught in off-campus locations, praxis can be enhanced because of the potential for teacher candidates to immediately connect ideas examined in coursework with field study experiences.

Field Study—Practica

There is agreement among researchers (e.g., Sharplin, 2002; Reid et al., 2010) and beginning teachers regarding the importance of direct personal experience in building familiarity with the diversity of rural lifestyles and the range of knowledge, skills, and beliefs that support professional and personal growth in rural and remote locations. Given that teacher education has generally remained "metro-centric" or "generic" in its orientation (Green & Reid, 2004), ITE institutions will need to undertake

deliberate efforts to provide field study experiences that connect teacher candidates with a broad range of rural contexts.

While student-teaching or internship placements in rural communities could be considered the ideal type of experience for deepening understandings (Sharplin, 2002), other approaches to "field study" can also assist teacher candidates in connecting with rural contexts to gather specific and accurate information about these places. For example, to expose teacher candidates to the diversity of contexts, several rural field trips to various locations could be arranged, including in each trip a visit to a school, farm, mine or other trade/industry important in the economic well-being of the community, or cultural site/event important to the community, and the chance for a discussion with community members at each of these sites. If field trips are expensive or difficult to arrange, ITE institutions need to look for additional ways to connect teacher candidates with students, teachers, and community members residing in rural and remote locations. Establishing a guest speaker program to bring rural teachers, students and community members on campus to meet and converse with teacher candidates would be useful for creating initial connections that could be followed up with video-conferences, skype sessions, blogging, online chat groups, or e-mail connections. Opportunities could be arranged for teacher candidates to be paired with students in a rural school to do some cyber-tutoring on a weekly basis. Through field study experiences like these, teacher candidates not only learn about the diversity of rural contexts, they can also deepen their knowledge of situational pragmatics and ways of living in school and community cultures, plus they can practice collaborative networking skills and learn from shared tales of the unexpected or unanticipated.

However, a caveat must be added to the consideration of ways to shape field study to provide direct exposure of teacher candidates to rural and remote contexts. Without doubt, placements in, and field trips and connection activities to, rural schools and communities are important, but "there is always

a danger that such forms of educational 'tourism' may only consolidate and affirm existing prejudices" (Reid et al., 2010). The design of field study experiences must be based on the understanding that "going to see" is not the same thing as "coming to know" and that coming to know rural (and urban) spaces means coming to know about "the set of relationships, actions and meanings that are produced in and through the daily practice of people in a particular place and time" (Reid et al., 2010). With these ideas in mind, it is clear that one-shot or short term visits are not enough to help teacher candidates develop the knowledge, skills, and beliefs that the beginning teacher participants in our study said were important. More sustained, thought-filled, and critically reflective field study is required for development of such capacities. Furthermore, it is also clear that place-based or "place conscious" learning approaches need to be infused throughout ITE programs so that teacher candidates can come to know particular places and learn and practice ways of researching and finding out about places where they could be hired as teachers.

Pedagogical Approaches: Place-Based or Place Conscious Learning

The importance of place conscious learning is repeatedly highlighted by researchers studying ways to support and sustain pre- and in-service teachers living and working in rural and remote locations (White, 2015; Reid et al., 2010; Shamah & McTavish, 2009; Green & Reid, 2004; Sharplin, 2002). Likewise, the voices of beginning teachers emphasized that place matters. The inclusion of place-based education in teacher education can ensure that beginning teachers gain access to knowledge and understandings of rural (and urban) places that will enable them to find their place in the social and cultural geography of particular places. With such place-based knowledge, skills, and beliefs, teachers are better able to sustain their commitment to teach and live in rural (and urban) spaces, because their professional and personal life experiences will be richer and more satisfying than those available to teachers who have not developed place consciousness (Reid et al., 2010).

While support for inclusion of place-based learning in teacher education is clear, curriculum designers need to carefully consider ways to infuse this across all elements of ITE programs. For example, when contemplating how to include place-based learning in teacher education, we need to keep in mind that "coming to know a place means recognising and valuing the forms of social and symbolic capital that exist there, rather than elsewhere. It means using the resources of the people who know" (Reid et al., 2010). Of course, this means that ITE institutions need to nurture partnerships that invite "those who know" to engage with teacher candidates' learning in both on-campus and field study experiences. This also means that ITE institutions need to demonstrate unwavering respect for "those who know" who are not normally included in on-campus learning experiences.

Teacher education program designers and program instructors will also need to consider how to incorporate pedagogical approaches to place conscious learning into the program. Given that place-based education is so tightly tied to particular locations, and the impossibility of providing teacher candidates with direct learning experiences within all of the diverse locales where they might be hired, approaches to place-based learning should support teacher candidates in connecting their lives to the regions where they live. By deepening place-based understandings of local places, teacher candidates experience ways of learning about more distant places, as well as learning about how to use understandings of place as a foundation in their professional planning and practice. Grunewald (2003b) elaborates three approaches to place-based learning that could be incorporated into teacher education programs: natural history studies, cultural journalism, and action research.

In natural history studies, teacher candidates would be offered "regular and direct contact with the plants, animals, and natural features of their local environments [through engagement in] firsthand experience with the living world outside the classroom" (Grunewald, 2003b, p. 637). While regular excursions into the out-of-doors is necessary in this pedagogical approach, it does not necessarily

require visits to far-flung nature reserves. Although this type of field trip can be enriching, the natural environment that lives right outside the teacher education building is an easy-to-access place for recurring outings where teacher candidates can broaden their experience as human beings by exploring and discovering the diversity of "what else in out there" (Grunewald, 2003b, p. 638). Through their personal experiences with natural history studies, teacher candidates not only discover how to learn about places, they also learn and practice a pedagogical approach they can employ with their students.

By engaging in "cultural journalism" (or local history) teacher candidates are offered the opportunity to create connections between themselves and the cultural life of communities that schools serve. This type of project would require teacher candidates to delve deeply into a focused study of a particular place that holds meaning for people, paying attention to how particular places shape beliefs, culture, and identities. Through interviews of community members, the gathering of stories about local traditions, observing elements of the natural and built environment, and attending to the presence of public and private spaces within a particular place, teacher candidates learn about the role of human beings as "place makers" (Grunewald, 2003b, pp. 638–639). Attending to these particularities of place, to the presence of public and private places for example, can help raise consciousness about the political process that works to shape cultural space. In this, teacher candidates can be alerted to social justice issues that arise out of the ways in which spaces are constructed and ascribed meaning. Grunewald (2003b) suggests that teacher candidates might explore questions like:

> What is the function of private and public space in our community? How has it changed over time? What political commitments guide the use of space? Who or what benefits from the way our community uses space, and who or what does not? . . . how are our places and the names we give them expressive of, and reproductive of, our local ways of being in the world? (p. 639)

Again, through this place-based learning approach teacher candidates discover how to learn about places and they also learn about an instructional approach they can use in their practice that combines integrated subject area learning with “real life” learning.

Action research, as a learning approach important in place-based education, would involve teacher candidates learning about how to take action toward determining what particular places are and what they could become. Teacher candidates would start by investigating their own local and (seemingly) familiar places with the aim of identifying problems or issues, analyzing these, and then planning and implementing some sort of action that targets change or conservation. This type of action research project requires that teacher candidates learn how to connect with community members outside of schools and to learn about how to build alliances with various agencies in a particular place—with community development organizations, children and youth organizations, government ministries, and nongovernmental organizations, for example. Action research projects can, of course, emerge out of natural history studies and cultural journalism, but action research goes beyond “learning about” a place. This instructional approach offers a practical model and useful tools that teacher candidates can use to help themselves and the students they teach become active participants in and contributors to community life. Through action research, teacher candidate learn about the particularities of a place and “become participants in the political process of place making” (Grunewald, 2003b, p. 641).

The importance of place conscious learning in teacher education is hard to deny, particularly if teacher educators and ITE program designers listen carefully to the voices of beginning teachers and take seriously the obligation to prepare teachers to live and work in diverse contexts. The employment of place-based pedagogies in both on-campus and field study elements of teacher education would mean that ITE programs would address the knowledge, skills, and beliefs that the beginning teachers who participated in our studies said were important. As Smith (2002) points out, in learning how to focus on

"phenomena immediately around them as the foundation for curriculum development," teacher candidates can enhance their professional practice, and, in learning how to focus on local, familiar places, teacher candidates can use their experiences as a base for examining "more distant and abstract knowledge from other places" (p. 593) where they could eventually live and work.

Conclusion

In contemplating questions about what Canadian teachers should know, it is vital that we listen to what in-service teachers say about their learning needs. In listening to what beginning teachers working in rural schools say about the capacities they needed to develop in order to best serve their students and communities, we have ascertained six categories of knowledge, skills, and beliefs that these in-service teachers identify as important for development within an initial teacher education program.

As teacher educators interested in supporting professional growth and personal well-being of teachers throughout their careers, we argue that teacher education must develop new strategies and programs (both pre-service and in-service) in response to such advice. Development and implementation of innovative approaches to teacher education will require dissolution of the traditional strict division between what happens "inside" a teacher education program and "outside" of it (Green & Reid, 2004), with negotiated cooperative endeavours to bridge gaps between what happens in on-campus study and field study and between what happens in pre-service teacher education and in on-going in-service professional development. This will take a concerted effort toward development of "more effective partnerships between universities, departments [or ministries] of education and community members and organizations" (Yarrow, Ballantyne, Hansford, Herschell, & Millwater, 1999, p. 11), with partnerships that span, at a minimum, across the duration of initial professional preparation and early career teaching (Green & Reid, 2004, p. 264).

When teacher education institutions collaborate with partner school divisions and communities, they can work together to determine ways of addressing professional practice and non-professional issues that impact teachers' decisions to accept or maintain appointments in rural divisions. Place-based learning relies on cooperative efforts in development of opportunities for learners to engage with and in natural and cultural spaces. Through authentic partnerships—that is, ones based on respectful relationships wherein all parties derive benefit—teacher education institutions can offer innovative programming that supports teacher candidates in developing knowledge of pragmatics, knowledge of the unexpected or unanticipated, generalist or interdisciplinary knowledge, knowledge and skills for professional networking and collaboration, and knowledge, skills, and beliefs for handling isolation and for living in rural (and urban) school and community cultures.

While this kind of partnership development and maintenance requires joint efforts among teacher education stakeholders, university-based ITE institutions will need to engage program designers, faculty instructors, and staff in professional development opportunities aimed at deepening understandings of resiliency learning and mindfulness practices, interdisciplinarity, rurality, and place-based education. Despite the fact that a program could be considered innovative and be designed in partnership with a range of stakeholders to meet the learning needs of teachers facing multiple contemporary professional and personal challenges, implementation of the program will fail if faculty and staff have preconceived negative notions about value of the new approach. Workshops and other learning opportunities where current research and promising practices are shared can help to provide evidence to support teacher educators in their consideration of what teachers need to know and how they need to come to know this.

In conclusion, to address the question of how the capacities that are developed by teachers following their education program could and should influence development of ITE programs, we recommend close and careful listening. Canadian teachers have important practical wisdom regarding

the knowledge, skills, and beliefs that need to be developed in ITE programs. Teacher educators must be willing to hear what teachers have to say.

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Chapter 12: Becoming Confident and Competent Assessors of Student Language Learning: Discussions with Novice Teachers about Learning to Assess in a TESL Program

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Abstract

Assessment for the purpose of supporting and encouraging learning is often considered to be one of the most difficult things for pre-service teachers to learn (Dixon, Hawe & Parr 2011; Kosnik & Beck, 2009; Stiggins, 2002). This chapter describes a small-scale study of six novice English second language teachers in Quebec and their views of how they have learned and are continuing to learn to assess their pupils. Findings include the fact that the participants were unanimous in stating that they learned very little about assessment during their university courses, despite having a designated course on assessment and 900 hours of practice teaching over 4 years. Participants reported feeling under-prepared and lacking in confidence to assess pupils when they began their teaching careers. Pre-service teachers require many opportunities to assess real student work during their program and a great deal of support to develop the necessary self-confidence to assess as novice teachers in order to build this capacity.

Becoming Confident and Competent Assessors of Student Language Learning: Discussions with Novice Teachers about Learning to Assess in a TESL Program

Pre-service teachers are faced with learning a multitude of new ideas, skills, and capacities during their teacher preparation. While curriculum is regularly revised and teaching approaches may go in and out of fashion, some capacities that accomplished teachers must develop do not change and require a considerable investment by all novice teachers. One of the most difficult is learning how to assess student work justly and with a view to supporting and encouraging learning. Although pre-service teachers have long experienced assessment as students, and are practiced at interpreting expectations and feedback when it is directed at them as learners, it is rare that they have had experiences prior to teacher education that have allowed them to take on an evaluator role (Volante & Fazio, 2007). According to DeLuca & Lam (2014), research on teachers' assessment competency points to a "significant gap between teachers' assessment practices and assessment theory, policy, and professional standard" (p. 6). This is particularly true of formative assessment, one of the most valuable forms of assessment for learners, but one of the most difficult to administer as well as to understand (Fisher & Frey, 2007). Many student teachers are unaware of the powers they possess as evaluators in the classroom, and have a tendency to oversimplify the way they evaluate and the way they communicate these assessments to pupils (Grainger & Adie, 2014). Teaching pre-service teachers to evaluate, particularly to evaluate formatively, is complex and needs to be modeled throughout their program (Black & Wiliam, 1998; Lee & Coniam, 2013; Popham, 2000; Stiggins, 2002). However, doing so remains a challenge because it is often difficult to integrate this type of assessment into university-based coursework. This chapter seeks to respond to the 8th CATE Biannual Working Conference questions which ask: *How are the capacities*

essential for new teachers identified and cultivated within teacher education programs? How do the capacities that are developed by teachers prior to and following their education program influence the education program? Our focus will be on the development of the capacity to assess in our student teachers as we identify how this capacity was cultivated in the small participant sample of our study. We will conclude with a discussion of how our greater understanding of the cultivation of assessment capacity has led us to revise some of the ways in which we support student teacher learning of assessment skills in our program.

As two teacher educators working in a 4-year teacher education program in a Quebec university, we have learned about the necessity to focus on assessment in our program from the students themselves who consistently comment on their lack of preparation for evaluating and lack of confidence in taking on the role of evaluator once they graduate. As a result, we are constantly striving to adapt our program to help pre-service teachers to understand the importance of learning to evaluate formatively, as well as the complexities of assessment and its various forms. This study examines the responses of a small cohort of graduates from our program to a questionnaire about their understanding of formative assessment and their current practices in assessing formatively as novice teachers. While a small-scale study such as this one cannot lead to large generalizations, it has proven useful to engage in this exchange with former students through a short questionnaire, as their responses are revealing about the way in which these particular new teachers understand what and how they have learned about assessment thus far in their professional development.

Review of Relevant Literature

Today's teachers (and pre-service teachers) are expected to understand which assessment methods to use to gather dependable information on student achievement and communicate assessment

results effectively, whether using report card grades, test scores, portfolios, or face-to-face discussion (DeLuca & Klinger, 2010). Thus, in order to fulfill such needs and provide pre-service teachers with opportunities to develop their abilities to teach and assess pupils, research has shown the importance of increasing pre-service teachers' practicum hours (Beck & Kosnik, 2000; Margolis, 2007; Turnbull, 2005), as well as the inclusion of formal assessment courses as important elements in developing the abilities to formatively evaluate in the classroom (Allen & Flippo, 2002; DeLuca & Klinger, 2010; Graham, 2005).

Despite the fact that many teacher education programs have put a significant emphasis on developing assessment literacy, several authors point out that only a few institutions throughout North America have formalized assessment education courses (Campbell, Murphy, & Holt, 2002; DeLuca & Klinger, 2010; Volante & Fazio, 2007; Stiggins, 2004). According to DeLuca, Chavez, Bellara, and Cao (2013), formal assessment courses are extremely relevant as they complement field-based teaching experience and help pre-service teachers develop their assessment literacy. However, as Mertler (2003) states, in order to be genuinely valuable, these courses must take into consideration the reality of classrooms, and learning about assessment practices should be seen as an integral part of the teaching process. Thus, the fact that an institution offers a formal assessment course does not guarantee that pre-service teachers will truly develop their assessment literacy. According to Volante and Fazio (2007), faculties of education should conduct a systematic gap analysis of their pre-service teachers in order to identify possible disconnections between the intended assessment curriculum and what pre-service teachers actually learn. If the content taught in formal assessment courses does not match the reality witnessed by teachers (and pre-service teachers), the new knowledge acquired in these courses is in danger of being washed out by classroom practices while on the practicum (Zeichner & Tabachnick, 1981).

In terms of the integration of formative assessment, some researchers also claim that despite its positive impacts on educational outcomes, it can be challenging to implement successfully in schools without a radical redefinition of the roles and responsibilities assigned to teachers and learners in learning and assessment (Black & Wiliam, 1998; Lee & Coniam, 2013; Popham, 2000; Stiggins, 2002), primarily because teachers have difficulty understanding their new roles. For instance, in a study conducted in Quebec, Thomas, Deaudelin, Desjardins, and Dezutter (2011) investigated the formative assessment practices of 13 experienced elementary school teachers and found that some participants were using formative assessment practices in their classrooms informally and spontaneously, but that they were not always able to explain how the practices were formative. In another study, Song and Koh (2010) found that teachers' use of formal or informal summative assessment prevailed over their formative assessment practices, which could be attributed to a lack of professional development in formative assessment practices.

Early career teachers (Caspersen & Raaen, 2014; Grainger & Adie, 2014) are often in a stage of experimentation as they attempt to put into place their professional teaching knowledge developed from courses and practicum and refine it according to their day to day experiences in the classroom. They are in the consolidation stage of their developing theories of teaching and assessing pupils and beginning to take ownership of beliefs and knowledge about teaching. In examining their reported practices and understandings of assessment and its role in student learning, we are attempting to fill in gaps in our knowledge about how student teachers learn to assess through our teacher education program, and which knowledge they carry with them into their careers.

Given what is known about the importance of formative assessment and the need for explicitly teaching it during teacher preparation programs, one might assume that this approach to assessment has now been implemented throughout the majority of programs. Unfortunately, a quick review of teacher

education across Canada shows that this is not the case (Campbell, Murphy, & Holt, 2002; DeLuca & Klinger, 2010; Fazio & Volante, 2011; Stiggins, 2004). One of the main reasons given for this omission is a lack of time, as many teacher education programs in North America are only 1 year long, although there are now increasing numbers of 2-year programmes, notably in Ontario, where this change has now been implemented across the province.

Teacher Education in Quebec

Quebec is the exception to this rule since future teachers are required to complete 4 years of university-level coursework in teacher preparation programs (this is following 2 years of general college as secondary school ends with Grade 11). The program we are examining, the Bachelor of Teaching English as a second language program at a university in Quebec, provides a 4-year teacher preparation including 900 hours of practicum, a formal assessment course, and five teaching methods classes that also include elements of assessment. Teacher education in Quebec is based on a framework of 12 competencies (see Appendix 2).

Over the past decade, despite our efforts to provide multiple and high quality opportunities for learning about assessment, we have noticed that our graduates continue to claim that they lack preparation for evaluating pupils and do not feel confident in taking on evaluator roles once they have completed their programme.

Therefore, this study seeks to learn more about how recent graduates of this Teaching English as a Second Language (TESL) program understand assessment as second language teachers, and how they enact their professional roles in the assessment process. It is based on the framework that the practice of assessment, and more specifically formative assessment, can be learned in teacher preparation programs (DeLuca & Klinger, 2010; Dixon et al., 2011; Graham, 2005; Sikka, Nath, & Cohen, 2007), and the research that indicates that in practice, without proper preparation and support, teachers (and pre-service

teachers) either follow their intuition when it comes to classroom assessment or are not aware that classroom assessment is happening in the class (Mavrommatis, 1997; Song & Koh, 2010).

Capacity versus Competency

As previously stated, in order to become teachers, pre-service teachers are required to develop a set of 12 professional competencies throughout their teacher education program. According to assessment specialists, many researchers and theorists have attempted to define and explain the concept of competency, which is central to understanding Quebec's educational system (Fontaine, Savoie-Zajc, & Cadieux, 2013; Laurier, Tousignant & Morissette, 2005; Scallon, 2004; Tardif, 2006). The definitions of competency found in the literature include that of Scallon (2004), who sees competency as "the capacity, a potential (unobservable) or a permanent characteristic of a person" (p. 105) and "an ability that is revealed when a person is placed in a group of problem-situations (several complex tasks with similarities)" (p. 106) (author's translation). In the Ministère de l'Éducation, Enseignement supérieur's (MEES)[22] guidelines, we find an official definition of competencies along with some of their main features:

> The Quebec Education Program defines a competency as a set of behaviours based on the effective mobilization and use of a range of resources. Set of behaviours refers to the capacity to use appropriately a variety of resources, both internal and external, in particular, learnings acquired in school or in everyday life. One aim of a competency-based program is to ensure that students' learning serve as tools for both action and thought, which is a form of action. Unlike a skill, which may be applied in isolation, a competency makes use of several resources and is itself used in fairly complex contexts. (Ministère de l'Éducation du Québec, 2001, p. 4)

[22] It is important to mention here that before 2015, the term in use was rather MELS (which stands for Ministère d'Éducation du Loisir et du Sport), and prior to 2005, it was MEQ (Ministère d'Éducation du Québec).

On the other hand, the term capacity can be defined as "an individual's mental or physical ability: aptitude, skill" (Capacity, n.d.). What is important to highlight here is that, different from a competency, which can be seen as something concrete/observable, a capacity is usually something unobservable, and thus harder to assess. Thus, in case pre-service teachers are not provided with such opportunities to assess their pupils' competencies, they could graduate with the feeling of not being capable of performing such task, as we have observed, which might not necessarily be true. Therefore, in terms of assessment practices, teacher education programs must make sure that pre-service teachers are provided with opportunities to develop both their capacities (theory and knowledge) and competencies (concrete manifestation of their knowledge) to assess their pupils' learning.

Methodology

We began this qualitative study by seeking ethical approval to reach out to recent graduates of the TESL program at our university through their university e-mail addresses, which they are permitted to keep and use as long as they wish. Knowing that not all recent graduates found teaching positions right away, and that some have chosen not to teach but to attend graduate school, leave the country, or change careers, we did not send out a general invitation but focused on graduates from the past 3 years whom we knew had immediately or almost immediately gone into full time teaching contracts. A total of 20 invitations to participate were sent and six recent graduates responded favourably to our invitation.

Participants

The volunteer respondents included 5 women and 1 man, all former graduates of the TESL program for between 1 and 3 years, and all teaching English as a second language (ESL) full time in Quebec at either the elementary or the secondary level. Participants ranged in age from 25 to 35 years,

and all six were born and raised in Quebec with French as their first language. Since the program prepares English language specialists for both the elementary and secondary levels, we included both in the study. Among the participants, there are four elementary level teachers and two secondary teachers.

English Education in Quebec

It should be noted that English is a compulsory subject in schools in Quebec beginning in Grade 1 and continuing until the end of *Collège d'enseignement général et professionnel* (CÉGEP), a separate institution that offers a 2-year program that is equivalent to Grades 12 and 13 for students planning to attend university, and 3-year vocational programs leading to certification for a variety of careers in the trades. We continue to use the term "English as a second language," as it is indeed a second language for the vast majority of pupils in the French language school system in Quebec. According to the 2011 census (Statistics Canada, 2011) 85.5% of Quebec residents claim French as their first language, and this number rises to 88% of children aged 15 and under. English as a first language is spoken by approximately 7.5% of the population, with the remaining 7% speaking an Aboriginal language or another language as a first language. At the elementary level in French language schools, English is taught for approximately one hour per week to each class. This means that elementary level teachers see upwards of about 400–500 pupils per week. At the secondary level, English is usually taught in 75 minute lessons about three times per week. A full time secondary teacher will have five groups to work with over the course of the school year, or about 190 pupils.

Data Collection and Analysis

After agreeing to participate, the respondents were sent a survey of 13 questions by email (see Appendix 1) which they all completed and returned. The responses were immediately transferred into a

version with a code name so that they could be analysed anonymously. The analysis was carried out by hand because of the small number of respondents and the small number of questions on the survey. Each of us analysed the questionnaires separately by pulling out key concepts and phrases for each question. We then met and compared these key concepts, finding that we were consistently focusing on the same concepts and phrases. In the few instances that we did not agree about the coding, we were able to reach a consensus through discussion. Therefore, we claim an acceptable level of reliability for the study due to the consistencies in the coding that was done separately. The findings of the study are discussed in the section below.

Findings

The responses to the 1st question—"What is assessment?"—led to responses including the terms "verification of knowledge" and "validation." It appears that all of the participants hold a common view of assessment as a means for teachers to determine how and what students are learning in order to be able to use this information. All six of the participants were able to clearly distinguish between formative and summative assessment, which was also part of this 1st question.

The 2nd question asked "How do you assess?" and the responses were equally similar. All six respondents mentioned observation as a main assessment approach, and most mentioned other tools. Two respondents pointed out that they assess different aspects (such as oral language skills and written language skills) of the English second language program differently.

For the 3rd question, where participants were asked about what was most important to them with regards to assessment and student learning, four of the six were able to make the connection between the importance of assessing student learning in order to increase teacher understanding of that learning and to improve teaching.

All six participants named grids as tools that they use to assess, which we interpreted to mean rubrics as well as charts and checklists. All participants also claimed to make their own assessment tools, although they mentioned adapting some to the needs of their students as well. In this same question, several participants wrote about the time required to develop and adapt assessment tools, but, despite this workload issue, all but one reported adapting tools before using them.

When asked about what they do when their assessment tools do not work, which was the 6th question of the survey, four out of six of the participants admitted that their tools do not always work and all of these mention that they try to find out why the tool was not an effective one. Two of this group mention reassessing students with a different tool, despite the extra time involved. Two of the six claim that their tools always work, so this is not a problem for them.

The participants were asked about how they learned to assess in the classroom, and five out of six mention learning from colleagues while on the job. Five also mention learning from coursework at the university, but they all qualify this with comments indicating that their learning from coursework was limited, often too theoretical and not practical. Four participants mention learning while on practicum as a student teacher, with a particular mention of the latter practica in 3rd and 4th years of the program.

The 8th question refers specifically to the TESL program and the courses that are offered that cover the topic of assessment. Respondents were asked whether these courses were helpful in terms of learning to assess and 5 of the 6 gave a qualified response, mentioning the fact that the courses were too theoretical and not practical enough. Two participants specifically mentioned the one course on assessment and assessment that is offered in the program as being somewhat helpful, and one participant claimed that none of the courses in the program helped him or her learn to assess.

In the following question, when asked whether they had learned to assess from their practicum courses, all participants answered yes. Moreover, all participants highlighted the practicum as probably the most important element in terms of learning to teacher and assess. For instance, one participant answered that it was in the practicum that she really started to learn what evaluation really means.

The 10th question inquired if the participants learned from their colleagues. All participants answered yes to this question, and they claimed that their colleagues were a source of knowledge and validation, advice, and shared material.

The 11th question focused on whether the participants were ready to evaluate at the end of their program or not. Half of the participants answered no and justified this by saying that the university classes were abstract, not realistic or not connected to the ministry's requirements. Moreover, the participants claimed that they were not ready for the complexity of assessments and the need for simplified tools. Two participants answered yes, they were ready, explaining that it was due to their practicum experiences.

The 12th question investigated the challenges the participants still encounter in terms of assessment. Among them, participants mentioned a lack of time to find creative, objective, meaningful and appropriate assessment tools.

Finally, the last question asked the participants if they had anything else to add. In response, three out of six participants reiterated the lack of opportunities to assess in real life situations during their university classes, and two out of six mentioned the lack of time and amount of work involved in carrying out assessment with their pupils.

Discussion

Learning to Assess in University-Based Programs

What is clearly evident from this small scale study is that despite any misgivings about their ability to assess and create accurate tools for assessment, the participants all clearly understand assessment and how to go about assessing their pupils despite their novice teacher status. The fact that all of them were able to define assessment in terms of verification of pupil learning and that all of them included observation as an important approach for learning about their pupils shows without a doubt that they understand assessment as a tool for "guiding instruction and teacher decision-making" (Fisher & Frey, 2007, p. x). In fact, four out of six of the participants explicitly mentioned, without prompting, the importance of assessing student learning in order to increase teacher understanding of that learning and to improve teaching.

However, the participants believe that they did not learn very much about assessment during their 4 years at the university, apart from the practica, for some of the respondents. These new teachers acknowledge that they received some information from coursework, but that they began their careers feeling unsure of themselves and frustrated by their lack of knowledge, "But I realize now, that even when I thought I was assessing them, I was not doing it right. I was all mixed up with the three competencies. During my first year contract I thought I was assessing C1 [oral language] while I was in reality assessing C2 [reading]" (Participant 4). It is important to mention here that the Quebec Educational Program for ESL is a competency-based program where pupils are expected to develop communicative competency in both oral and written forms (MEQ, 2001, pp. 351-362). The following participant deplores the lack of explicit, hands-on preparation for assessment: "I don't feel like our classes prepared us for what was coming. I still have a hard time evaluating some levels because I lack the knowledge of how to do it. In university we never saw how to concretely evaluate every level" (Participant 1). Another respondent states that it is the preparation of assessment tools that is problematic: "I feel I still lack the knowledge and the experience to adequately evaluate my assessment

tools" (Participant 2). We interpret these results as indicating that pre-service teachers need more opportunities to try out assessment, including the creation of assessment tools, while working with an instructor or mentor teacher. Listening to a professor describe assessment is not sufficient for taking on an assessor role, and even during the practicum, pre-service teachers are limited in the amounts of assessment they are encouraged or even permitted to do. Students in teacher education programs appear to have a great deal of difficulty in making connections between what is being taught in their courses and what they need to be able to do as teachers. This appears to be particularly true with regards to assessment, as it is such a complex part of the teaching role. As one participant wrote, "I also despise having to put a grade on a student's learning. After all, grades are used to assess a student's learning but they are, at the same time, tightly linked to his or her motivation to continue to learn. I find that this impact on our students is underestimated, and I feel a certain pressure when giving grades" (Participant 2). This novice teacher obviously understands the enormous impact that a teacher's assessment practices can have on pupils and their learning, and is still uncertain about that.

One of the participants even suggests, in a response to the final, open question in the survey, creating a bank of real student work that pre-service teachers could use to practice assessment. We agree that providing material to work with, along with support and opportunities to discuss their assessments so as to better understand the process, would be very helpful, and we have attempted to create such a bank of material for many years. The challenge was always to convince teachers to donate student material for this purpose. Perhaps one of the positive outcomes of this study will be the donation of student material for such a bank from the participants.

Challenges of Time Management for Assessment

Another aspect of assessment that clearly comes across in the responses is the question of time and the large amounts of time required to assess accurately and communicate this information to pupils. One respondent criticizes the teacher education program for not adequately preparing new teachers for the workload associated with assessment: “I feel the amplitude of the workload was neglected and made out to be a lesser deal than it actually is” (Participant 5). Another respondent contrasts her approach with more experienced teachers:

> It is very time-consuming and consists of a HUGE workload daily. I want to do it well so I am very detailed. I notice that experienced teachers tend to “cut to the chase” and don’t spend so much time/energy in assessment as I do. I want to remain precise and “exhaustive” in my assessments but I would like to be more productive (time-wise). (Participant 7)

In examining this aspect of assessment, we are in agreement that good assessment takes time, and that we probably do not explain this clearly enough in coursework. At the same time, it is possible to interpret these comments as being indicative of a lack of confidence, as well as a lack of time. The second respondent compares her or himself with experienced teachers, and notes that they appear to be able to complete assessments in much less time. This participant would like to be more efficient but is unwilling to let go of the need to be detailed, precise, and exhaustive when assessing, all indications of a lack of being sure of oneself in this role.

Developing Self-Confidence for Adopting an Assessors’ Role

The level of self-confidence for assessment in novice teachers is well-documented through studies conducted by Volante and Fazio (2007), DeLuca and Klinger (2010), and DeLuca et al. (2013). For instance, DeLuca and Klinger (2010) found that despite the fact that assessment courses do benefit pre-service teachers’ assessment literacy levels, these courses may not necessarily develop their knowledge and confidence to take on the role as assessor in a consistent way. Moreover, DeLuca and

Klinger (2010) state that pre-service teachers' level of confidence tends to rise as they approach the end of their TE programs but it will decrease as novice teachers begin working in the field.

Learning About Assessment from Experienced Colleagues

The importance of collegiality and learning from colleagues is another important theme of this research. Five of the six participants mention that they learn from more experienced colleagues and are often on the receiving end valuable material: "I always ask around when I am not sure of assessment. Plus I have a wonderful colleague . . . who often gives me material to work with" (Participant 1). Another participant stated that "some are great and shared tons of their material and gave cues, which are extremely helpful. It gives me ideas and helps me identify what fits with my teaching styles. I think they are invaluable resources!" (Participant 3). One of the participants also indicated that it is through discussion and exchange that he or she learned the most from colleagues: "I value their opinion, their feedback, their advice. I find they are the best advisors since they understand the reality of today's classrooms, students and available resources. I believe discussions with peers are the best way to evolve as a teacher" (Participant 2). Another participant mentioned learning from colleagues in the past, but the reality of the job as an English language specialist means being the only person with that position in an elementary school: "Unfortunately, I'm the only core English teacher in my school, so there is nobody who can really understand my issues and help me through them. I wish there was because I often feel quite alone in my situation, as an English teacher with not much experience" (Participant 4).

Improving Opportunities for Learning to Assess

Learning on the job as a novice teacher is inevitable, and the importance of working with experienced colleagues who can act as mentors has been well-documented (Ingersoll & Strong, 2011;

Kutsyuruba, Godden, & Tregunna, 2014; Le Cornu, 2013). However, we see from the comments of Participant 4 that graduates of our program will not be able to count on having generous, supportive colleagues once they begin to teach. Teacher preparation must include opportunities for pre-service teachers to adequately prepare for their roles as assessors, and this needs to include time and space to develop the level of self-confidence required to take on these challenging roles as well as the strong professional identity (Beauchamp & Thomas, 2009; Akkerman & Meijer, 2011) that will permit novice teachers to act with agency within their teacher role.

As a result of this study and our subsequent reflections on how to improve our teacher preparation program we have done the following: improve the amount and quality of support given to associate teachers and university supervisors; encourage pre-service teachers to further reflect on their own professional development (so as to promote autonomy); and encourage teacher educators to promote explicit teaching (in order to fill the gap between theory and practice). These are some examples of how an examination of recent language teacher graduates' capacities to assess have influenced the development of our program.

Limitations

It is important to note that the limits to this study do not permit a wide-scale application of the findings. There are only six participants, and these were all successful in finding employment immediately upon graduation in a competitive market, meaning that they may not be typical of all graduates of the program. The differences in their teaching tasks and the amount of experience they have could make a comparison of their responses to our questions complex and inconclusive. In addition, the use of other data collection tools such as observation, and in-depth interviews would have contributed to deepen our understanding of the subject, but it was not possible to obtain permission to do this.

Conclusion

This small study reveals that novice English second language teachers who are graduates of a particular teacher education program in Quebec do not believe that they are adequately prepared for assessing pupils during their teacher preparation, despite the fact that they are required to take a specific course on assessment and they spend 900 hours on practicum during their degree. They do not perceive the pre-service program as permitting them to develop the necessary capacities to assess pupils, even if information on doing this is provided during coursework. The participants clearly understand assessment but state that they are still learning about how to put what they know into practice in the classroom. They also appear to lack the level of self-confidence necessary to feel comfortable and at ease with assessment on a regular basis, without feeling overwhelmed by the time involved in being accurate and precise. What appears to be needed in our program is not so much more coursework, or even more practicum hours, but some form of on-going support that will help to build this necessary self-confidence that would allow novice teachers to make best use of their knowledge, capacities, and competencies. It appears that even when novice teachers receive resources and advice from mentor teachers this is haphazard and left to chance. There is also a strong chance that a new teacher from our program for future second language specialists will be placed in a situation where she or he will not have the opportunity to work closely with peers because of the nature of the role of the specialist. For this reason, it is essential that graduates leave our program believing that they are not only well-prepared for the challenges of the profession (capable), but that they have the self-confidence to continue to believe in themselves when faced with the inevitable difficulties of the first years of teaching. We believe that this can be achieved if they have more opportunities to actually assess their pupils' competencies (in other words, to apply their capacities).

In conclusion, this study does not provide a great deal of new or ground-breaking findings on the perceptions of novice second language teachers with regards to formative assessment. However, the fact that our findings replicate so many other much larger and more detailed studies in a wide variety of teacher education contexts and jurisdictions (DeLuca & Klinger, (2010); Song & Koh, 2010; Thomas et al., 2011) suggests that there are some endemic issues at play here with regard to the ways in which new teachers struggle to enact the capacities and competencies of pupil assessment that they have learned about in university-based programs. The vast and complex topic of learning to assess certainly merits further investigation.

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Appendix 1

Questionnaire

1) What is assessment to you? Do you make a distinction between formative and summative assessment?

2) How do you assess your students' learning?

3) What is most important to you about assessment in terms of student learning?

4) What kinds of tools do you use?

5) Do you make up your assessment tools yourself?

6) What happens when they don't work very well?

7) How did you learn to assess?

8) Did you learn to assess from the courses in your program?

9) Did you learn to assess while on practicum?

10) Do you learn from your colleagues now that you are a teacher?

11) Were you ready to assess when you left the university? Why? Why not?

12) What is still challenging for you about assessment?

13) Is there anything else you would like to add?

Appendix 2

12 Professional Competencies for Teachers in Quebec

1. To act as a professional inheritor, critic and interpreter of knowledge or culture when teaching students.

2. To communicate clearly in the language of instruction, both orally and in writing, using correct grammar, in various contexts related to teaching.

3. To develop teaching/learning situations that are appropriate to the students concerned and the subject content with a view to developing the competencies targeted in the programs of study.

4. To pilot teaching/learning situations that are appropriate to the students concerned and to the subject content with a view to developing the competencies targeted in the programs of study.

5. To evaluate student progress in learning the subject content and mastering the related competencies.

6. To plan, organize and supervise a class in such a way as to promote students' learning and social development.

7. To adapt his or her teaching to the needs and characteristics of students with learning disabilities, social maladjustments or handicaps.

8. To integrate information and communications technologies (ICT) in the preparation and delivery of teaching/learning activities and for instructional management and professional development purposes.

9. To cooperate with school staff, parents, partners in the community and students in pursuing the educational objectives of the school.

10. To cooperate with members of the teaching team in carrying out tasks involving the development and evaluation of the competencies targeted in the programs of study, taking into account the students concerned. Social and educational context

11. To engage in professional development individually and with others.

12. To demonstrate ethical and responsible professional behaviour in the performance of his or her duties.

Part III

How are teacher education programs held accountable for the capacities their teacher graduates possess? How are teacher capacities measured at any stage in their development?

Chapter 13: Conceptualizations of Diversity and Inclusion in an Urban Teacher Education Program: A Case Study of Teacher Capacity Development

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Abstract

This paper examines teacher capacity development in teacher candidates enrolled in a 5-year concurrent teacher education program at a large university in Canada. Taken from a larger study on teacher candidate learning, the authors discuss the evolving conceptualizations of diversity and inclusion in an urban teacher education program. Within the context of a case study, a qualitative content analysis of data coming from a teacher candidate's application profile, reflective writings completed at different stages in the program, and interview responses from the final year of the teacher education program were conducted. Emergent themes demonstrate the teacher candidate's professional growth and her nascent conceptualizations of diversity. Results show that the development of a professional teacher identity is central to the teacher candidate in this study, while concepts of diversity and inclusion are integral to this development, but not as central as proposed by the teacher education program.

Conceptualizations of Diversity and Inclusion in an Urban Teacher Education Program: A Case Study of Teacher Capacity

Introduction

Teacher education in Canada and in other contexts has undergone many changes over the years (Gambhir, Broad, Evans, & Gaskel, 2008; Crocker & Dibbon, 2008; Grant, 2008; Walker & von Bergmann, 2013). These changes are often linked to the question of teacher capacity or what teachers need to know, be able to do, and care about (Grant, 2008). In particular, seminal questions relating to the capacities of current teacher graduates and their ability to serve an increasingly diverse population of K-12 students are emerging. Discussions or debates of teacher capacities in teacher education programs are often connected to the larger issues of accreditation (Gollnick, 2008; Ben Jaafar & Anderson, 2007), Conceptualizations of Diversity and Inclusion in an Urban Teacher Education Program: A Case Study of Teacher Capacity Development such as goals and standards for teaching. In Canada these standards are established by provincial and territorial departments or ministries (Nickel, O'Connor, Falkenberg, & Link, 2015; Hirschkorn, Kristmanson & Sears, 2013). Increasingly, such standards place emphasis on student learning and factors affecting it (Gambhir et al., 2008). A 2006 report issued by the Ontario College of Teachers, the regulatory body for the teaching profession in Ontario, for example, recommended that special education be an integral part of teacher education programs (Gambhir et al., 2008). Consequently, teacher education programs highlighted the importance of addressing this aspect of diversity and the related concept of inclusion in program development efforts. Many other teacher capacities are linked to teacher education program components that in Canada, according to Gambhir et al. (2008), tend to be consistent with knowledge bases for teaching (Darling-Hammond & Bransford,

2005; Murray, 1996; Turner-Bisset, 2001). Grant (2008) argues that, while a discussion of teacher capacity could be conceptualized in many ways, what is lacking in literature on teacher capacity is:

> scholarship about teacher capacity as it relates to knowledge, skills, and dispositions for teaching non-white students and other traditionally marginalized groups . . . as well as what teacher candidates need to know, care about, and be able to do to work in classrooms that are becoming increasingly diverse. (p. 129)

Drawing on Grant (2008) and on the work of other American (Ball & Tyson, 2011) and Canadian (Egbo, 2009; Gagné, 2009; Mogadime, 2011; Ragoonaden, Sivia, & Baxan, 2015) scholars who have addressed directly or implicitly teacher capacity for an increasingly diverse body of K–12 students, we examine the concept of diversity and inclusion within the teacher capacity discourse by exploring how a teacher candidate develops understandings of teaching and learning in a 5-year concurrent teacher education program at a large university in Canada. We begin the chapter with an overview of studies that address teacher capacity from a knowledge base perspective for a diverse student population. Our study is then presented with illustrative examples that show the growth of the teacher candidate's knowledge as she progressed through a 5-year concurrent teacher education program. We conclude the chapter with discussions and recommendations.

What Is Teacher Capacity for Teaching Diverse Populations?

What teachers need to know, be able to do, and care about has been conceptualized differently over the years (Grant, 2008; Williamson McDiarmid, & Clevenger-Bright, 2008) and these conceptualizations are often linked to social, economic, and political agendas (Grant, 2008) and changing educational contexts (Gambhir et al., 2008, Gagné, 2009). Williamson McDiarmid and Clevenger-Bright (2008) argue that knowledge, craft skills, and dispositions are three broad categories of teacher capacity that have been present over time:

> Although policymakers, regulators, researchers, critics, and teacher educators have disagreed about how each [teacher capacity] is defined, weighted in importance, learned, and assessed, three broad categories appear to capture the spectrum of teacher capacities across time: (1) *knowledge*, including subject matter, pedagogical content knowledge, curriculum, pedagogy, educational foundations (multicultural as well as historical, philosophical, sociological, and psychological), policy context, diverse learners (including those with special needs) and their cultures, technology, child and adolescent development, group processes and dynamics, theories of learning, motivation, assessment; (2) *craft skills*, including planning, organizing, and orchestrating instruction, using instructional materials and technology, disciplining pupils, managing groups, monitoring and evaluating learning, collaborating with colleagues, parents, and community and social services agencies; and (3) *dispositions*, including beliefs, attitudes, values and commitments. (p. 134, emphasis in original)

A measure of teacher capacity existed in Ontario for 3 years in the form of a legislated qualifying test for initial teacher certification following the completion of an accredited teacher education program (Glassford, 2005; Ben Jaafar & Anderson, 2007). The measure, entitled Quality in the Classroom Act 2001, aimed to ensure that teacher education program graduates had the necessary skills and knowledge required for the profession (Glassford, 2005). A change in government in 2003 resulted in the end of this measure. Furthermore, the qualifying test was criticized for lacking evidence that it reduced the inclusion of the most qualified teacher (Ben Jaafar & Anderson, 2007, p. 221). The act also included a mandatory recertification requirement for teachers that required proof of professional development, which was terminated in 2004 as well. Critics of the government legislation stated that "both initiatives were deemed disrespectful of teachers' professionalism" (Ben Jaafar & Anderson, 2007, p. 221).

Howard and Aleman (2008) maintain that "only in the past 30 years has the issue of diversity been part of the teacher capacity discourse" (p. 157). A push for addressing diversity in teacher education was a result of the call from the American Association of Colleges for Teacher Education and then the National Council for Accreditation of Teacher Education, in the United States (Howard & Aleman, 2008). These authors contend that questions pertaining to diversity have often been separated

from the rest of the teacher education curriculum, despite efforts from varied committees and task forces to reform teacher education programs (Howard & Aleman, 2008, p. 157). Howard and Aleman (2008) define teacher capacity as:

> the core knowledge, skills and dispositions that teachers should possess to teach in today's classrooms . . . the command of the subject matter and pedagogical content knowledge . . . and awareness of the social and political contexts of education and the development of critical consciousness about issues such as race, class, gender, culture, language, and educational equity." (pp.157–158)

Grant and Agosto (2008) maintain that teacher educators, such as Giroux (1992), Kumashiro (2002), and Cochran-Smith (2003), have started to examine more extensively how teachers' knowledge, skills, and dispositions relate to social justice, by each describing different approaches, ideas, or methods for integrating social justice perspectives into teacher capacity. Feiman-Nemser (2008) argues that a discussion of the knowledge bases is inevitable in research that examines diversity and teacher education and the knowledge, skills, and commitments that teacher candidates need to develop to work with diverse students. Feiman-Nemser (2008) further posits that "the rationale for linking evidence of teacher learning with evidence of student learning comes in part from the educational imperative to enhance the learning outcomes for a diverse student population" (p. 698).

Feiman-Nemser (2008), Sykes (1990) and Darling-Hammond (1997) advance models of teacher knowledge bases for effective teachers that remain influential in the field of teacher education. To begin, Feiman-Nemser (2008) maintains that learning to teach can be conceptualized around four broad themes: "learning to *think* like a teacher, learning to *know* like a teacher, learning to *feel* like a teacher and learning to *act* like a teacher" (p. 698, emphasis in original). For Feiman-Nemser, learning to "think" like a teacher refers to a critical examination of one's existing beliefs, and developing an ability to think on one's feet and adjust one's practice. Learning to "know" like a teacher refers to the different

kinds of knowledge that teacher candidates need to acquire: subject matter knowledge; knowledge about diverse learners; knowledge about how students develop; knowledge about curriculum, pedagogy, classroom organization, and assessment; and knowledge teachers generate in practice. The author emphasizes the need for a conceptual framework that would help teachers organize or "hold" the knowledge and that would facilitate its retrieval and use (p. 699). Learning to "feel" like a teacher, as Feiman-Nemser (2008) posits, refers to developing a professional identity. This process entails an examination of the self-knowledge that teachers need, especially when teaching students from a background different than themselves; making decisions in regards to their vision of a good teacher and realities and challenges they face. Learning to "act" like a teacher assumes that teachers need to be able to make a judgement of "what to do and when" (Feiman-Nemser, 2008, p. 699).

Sykes (1990) notices that "most teacher education programs are structured around four distinguishable but overlapping knowledge bases: general education, pedagogical studies, specialty studies, and field experiences" (p. 245). Shulman (1987) proposes a more detailed list of knowledge bases for teaching: (1) content knowledge, which refers to subject matter knowledge; (2) general pedagogical knowledge, including principles and strategies of classroom management and organization that appear to transcend the subject matter; (3) curriculum knowledge, which includes materials and trades that serve as "tools" of the trade for teachers; (4) pedagogical content knowledge, meaning a combination of content and pedagogy as a special form of professional understanding; (5) knowledge of learners and their characteristics; (6) knowledge of educational contexts (e.g., classrooms dynamics, schools districts' governance and financing, community character); and (7) knowledge of educational ends, purposes, and values and their philosophies and historical grounds.

Darling-Hammond (1997) maintains that the following be taught in a teacher education program in order to meet the demands of teaching: (1) a firm understanding of the subject matter; (2) a

foundation in pedagogical content knowledge; (3) knowledge of child development; (4) an understanding of differences as related to culture, language, community, gender, prior schooling, and environmental conditions that can affect people's experiences; (5) an understanding of the concept of motivation; (6) knowledge of the process of learning; (7) how to assess students' knowledge; (8) how to use teaching strategies; (9) how to use curriculum resources and techniques; (10) knowledge about collaboration; and (11) how to analyze and reflect. In addition to the knowledge bases above, attributes that cannot be taught are also important for future teachers to possess, such as morality and ethics (Sockett, 2008). The Ontario College of Teachers (OCT, 2015) identifies care, respect, trust, and integrity as main attributes in its *Ethical Standards for the Teaching Profession*. Egbo (2011) calls for a re-conceptualization of teacher candidates' knowledge base, "since the ideological orientations of novice teachers can serve as a barrier to adopting transformative practices" (p. 26).

In the following sections, we present our study to illustrate how a teacher candidate in a 5-year concurrent teacher education program develops teacher capacity with a focus on diversity conceptions. We offer this detailed case study to help map how teachers move from what they really know to what successful, experienced colleagues might know, and with this knowledge, "we might be able to plan teacher education programs to help teachers better develop these skills" (Grant & Sedaca, 2015, p. 193).

The Study

This chapter draws on a larger case study examining how 119 teacher candidates developed capacities in the course of their study in a 5-year concurrent teacher education program in Ontario with commitments to equity, diversity, and social justice (see Baxan, 2015). For the purpose of this chapter, we present the case study of one teacher candidate. A case study is primarily a form of qualitative interpretative research (Yang, 2005a, 2005b) with a limited number of quantitative tools. We chose this

particular design because we were interested in a stance of peculiarity (Short, 1991) and insight, discovery, and interpretation, rather than hypothesis testing (Merriam, 1998, 2009). A case study approach is often the best methodology for addressing questions in which understanding is sought to improve practice (Merriam, 1998).

Primary data for the case study in this paper are the teacher candidate's admission profile completed by her at the time of applying to the teacher education program, reflective writings from Years 1, 2, 3, 4, and 5, and her individual interview responses conducted at the end of Year 5. As all the documents that were submitted by the teacher candidate were dated, the stage in the program was easily identifiable. The admission profile provided insights into existing conceptions at that time. The reflective writings were shared by the teacher candidate through the e-portfolio. The e-portfolio represented a good data source to study teacher candidates' development in the program (Baxan, 2015; Goodnough, Bullock, & Power, 2015), as the portfolio incorporated sections, referred to as strands, related to a number of knowledge bases identified in research literature (Shulman, 1987).

The interview lasted for approximately 1 hour in length and took place in the 5th year of study. The interview allowed us to tap into the teacher candidates' past experiences with diversity, experiences that are impossible to replicate (Merriam, 1998). For the purpose of presenting the findings, we conducted a text content analysis (Bazerman, 2008) of the data sources. The illustrative case, which we present and analyse in what follows, has been selected from the larger number of participants (Baxan, 2015) because this teacher candidate was among a smaller pool of future teachers who volunteered to share data sources that represented varied points in their program of study. We use "Dorothy" as a pseudonym to identify the teacher candidate.

The Case

In what follows we draw on data from different points in the teacher education program to analyse Dorothy's developing teacher capacity with a focus on how she conceptualized diversity. The presentation and analysis is organized by the stage in the teacher education program and themes at each stage.

Teacher Candidate Background: Coming From a "Sheltered" Environment. Dorothy, a White female in her early twenties, was in the 5th and final year of the teacher education program at the time of her participation in this study. She was seeking certification in music and French as a second language. Dorothy described herself as "4th or 5th generation Canadian, Caucasian, mostly English-speaking background" (Interview Response). She described the community where she grew up as "quite small in population, but large in geography . . . , primarily Anglophone-Francophone," and her school as comprising "students in the surrounding villages [who] came together in one central school. It was a collection of smaller villages." Dorothy further described her experience with diversity as "sheltered," when she stated that "as a child and a teenager I was pretty sheltered as far as cultural diversity went." She further stated that she had encountered people who were from different backgrounds, but it was in "a very controlled situation" and that it was not a daily occurrence.

Application for Admission to the Teacher Education Program. At the time of applying to the teacher education program, Dorothy was concerned with a number of issues, such as the way an individual's socioeconomic status impacted opportunities to be involved or participate in extracurricular activities, individual learning style, French as a second language, and disability as a diversity conception.

Socioeconomic class and involvement in extracurricular activities. When asked to describe in the Applicant Admissions Profile a time when she or someone she knew was advantaged or

disadvantaged because of being different from others, Dorothy described when she was the president of a horse club and she witnessed how someone who did not own a horse, “the only horseless member of the horse club,” was not chosen to represent the club in a competition, although this club member “was very determined and professional, always positive and upbeat . . . , had worked so hard and had learnt so much.”

Dorothy’s understanding of socioeconomic status at the time of enrolment into the teacher education program was that it should not impact how students were treated. The teacher candidate seemed comfortable expressing the idea that socioeconomic status should not impact attitudes toward students. She also expressed her dissatisfaction with such an attitude when she stated, “No student should ever be valued or appreciated more than another based on their financial or social situation.” Dorothy, at this entry point in her teacher education journey, made an attempt to identify an approach as a teacher to address this question, “all students have the potential to excel if you choose to help and guide them to make good decisions and to have outstanding work ethics.” Nonetheless, this attempt fell back on the meritocracy argument for success and did not address issues of power (Davies & Guppy, 2010) since Dorothy also emphasized that students were in charge of their achievements.

Individual learning style, French as a second language, and disability as a diversity conception. At the time of applying to study in the teacher education program Dorothy also described three experiences of “teaching and learning” in addition to the Equity and Diversity Issues question: using mathematics to help someone learn music; retelling a text in French in “a comical way in English” to help someone with French reading comprehension; and using colour coding for the piano keys to help a student who was “deaf in one ear” to learn beginner piano. All these three experiences, as Dorothy explained in her writing, helped her learn that “no student learns in the same way.” The teacher candidate showed confidence with the idea of diverse student learners, whether it be individual learning

style, French as a second language, or disability as diversity. Dorothy also identified approaches as a teacher to address the needs of diverse learners when she stated, “there are many diverse types of learners in the world that teachers must be flexible enough to adapt to,” and then “I learned to try different ways to approach learning material based on the students’ obvious inclinations.” However, similar to what she stated in the Equity and Diversity Issues question, Dorothy did not recognize larger societal barriers to success (Shulman, 1987; Davies & Guppy, 2010), but pointed to the individual characteristic of “confidence” when she stated, “the confidence they [students] lack, is often the largest obstacle between the student and their success”.

Year 1: How to become an educator? During her 1st year in the concurrent teacher education program, Dorothy seemed to be concerned about learning to *feel* and to *know* like a teacher (Feiman-Nemser, 2008) by focusing on her development as an educator and on how to acquire the skills needed to “teach students from all different backgrounds,” as demonstrated in her reflective writings. Although one of her reflections written in Year 1 was posted under the Subject Matter knowledge base strand of her e-portfolio, Dorothy was describing her own achievements in her teachable subject—receiving a particular merit scholarship. The teacher candidate explained the relevance of this entry under the Subject Matter as follows: “Falling under the subject matter strand, this award demonstrates my sense of dedication toward the field of education and my ongoing desire to nurture music growth in students at all stages of artistic growth.” Dorothy’s other entry in Year 1 was under the Self/Teacher Development knowledge base strand and showed her anxiety and thoughts about choosing teaching as a career: “There were often times during these first few months that I contemplated why I was in the Music education program and if it was even right for me.” Dorothy further revealed in this entry that “after having attended this conference I began to realize just how important teaching is to me” and that “this conference renewed my desire to become an educator.” These teacher candidate’s reflections during her

1st year in the program showed that she was struggling with her identity as a teacher, but was also looking for avenues, such as student conferences, which could help her become a better educator for a varied body of students.

Year 2: Multiple learning and teaching techniques - Is "tradition" best to follow? During her second year in the teacher education program, Dorothy was concerned about her knowledge of "multiple learning and teaching techniques." She reflected on these under the Knowledge of the Learners knowledge base strand and under her Teaching Philosophy. Under Knowledge of the Learners, Dorothy described her experience tutoring a student with attention deficit hyperactivity disorder (ADHD) in mathematics. Although Dorothy had "always been considered a high-achieving student," she struggled - in particular with math. Thus, that tutoring experience was not only a "challenge for him as a student but me as a tutor." In her other entry Dorothy reflected on her Teaching Philosophy by describing an experience as a music camp counsellor where she "began to develop a new concept of what it truly means to be a Music educator." She described how two friends who had been practising playing violin for the same number of years were placed in different level ensembles, based on auditioning results. Dorothy always "deemed auditioning as fair" prior to that experience. After that experience, seeing how one of the students who was placed in a "lower level ensemble" felt "devastated, even worse, the friend he had come with was placed in a completely different ensemble. He felt isolated and most certainly, he felt untalented," Dorothy "realized that traditions are not always the best way to do things." The teacher candidate reflected on ways students' knowledge was being assessed (Darling-Hammond, 1997) and felt that auditions were not appropriate for placing students in ability groupings in a summer camp. As the reflections under the Knowledge of the Learners knowledge base strand and under her Teaching Philosophy demonstrated, during Year 2 in her program, Dorothy continued to grow an interest in learning more about diversity and inclusivity. Although the teacher candidate continued to

struggle with ideas of merit and power, she seemed to be determined to "investigate" and learn more about them.

Year 3: Mastering the teachables. In her 3rd year in the teacher education program, Dorothy was concerned with "learning to *know* like a teacher" (Feiman-Nemser, 2008, p. 698): mastering French as a second language, as French was her "secondary subject," or teachable. She reflected on her French immersion study abroad program that she had completed during the summer term. The teacher candidate included this reflection under the Subject Matter knowledge base strand, since she "[felt] it is an achievement in her French studies." Although Dorothy did not refer to diversity explicitly in her reflections from the 3rd year in the teacher education program, she described her vision of a good second language teacher (Feiman-Nemser, 2008) when she stated, "The greatest asset a second language teacher can have is fluent bilingualism, a firm and confident understanding of their subject." As seen from this and other examples, Dorothy was still seeking opportunities for professional development as a teacher and she was concerned with her knowledge of the subject matter. Learning to feel and to know like a teacher seemed to be of high value to her as a future teacher.

Year 4: Teachable subject, attitudes toward teachable, factors affecting learning the teachable. In her 4th year in the teacher education program, Dorothy was concerned about a number of issues pertaining to content knowledge, knowledge of learners and their characteristics (Shulman, 1987), and factors affecting students' experiences and motivation (Darling-Hammond, 1997): music as her main teachable subject; students' and parents' attitudes toward music; and impact of socio-cultural and religious beliefs on learning music in secondary schools. Furthermore, she reflected on her role as a teacher of music and how to motivate students to learn. In her reflection from Year 4, Dorothy described a case study as part of a group project in her teacher education program that focused on "a student with

low self-efficacy and parents at home who were telling him that school just wasn't worth the effort." She related this case study to her experience in her practicum in an effort to "bring reality to this scenario":

> My student was absent for more than 50% of my classes and was failing. His father told him not to worry because he was destined to take over the family plumbing business and he didn't need to take Band to be successful in the trades.

Dorothy further asked herself, "What is a teacher to do when a parent devalues your subject or school altogether? I find that both my subjects, Music and French, are often seen as 'throw away' courses by parents." During the placement that the teacher candidate described, she reported hearing parents, students, and even associate teachers in the school say that her two teachables were not needed in the "real world." Dorothy was troubled by this finding and was thinking that "this is a tough mindset to break." She struggled with the idea of "fighting these parents and students," and debated between choosing to "move on to a subject that does interest them" or to continue her work as a music teacher in an effort to motivate students to learn, because "it makes me feel like I haven't done my job if someone leaves my class thinking Music doesn't matter." Dorothy also reflected on the impact of socio-cultural perspectives and religious beliefs on students' motivation to learn by sharing a story from her practicum:

> My own associate teacher who taught at [X school] for almost 25 years before moving on to his new school claims it was fighting the culture norms of the immigrant population that made him leave his position as head of Music.

Dorothy stated that "motivation is a huge factor in a student achievement," and she came up with "10 Top Ways to Motivate" that she shared with her fellow teacher education classmates. She also stated that she realized that motivation was one of the "toughest aspects of teaching."

Year 5: What is an expert teacher? In her 5th year of the teacher education program, Dorothy continued to reflect on "learning to *feel* like a teacher" (Feiman-Nemser, 2008, p. 698) or developing a professional identity. She connected the idea of what a "good" or "expert" teacher is and how to

“become an expert pedagogue” to field experiences. She stated, “Call me old fashioned, but I truly believe that teachers learn best from actually being in front of the classroom. An expert in the field of education cannot possibly attain his or her expertise without first having experienced a live classroom.” The piece of writing that the teacher candidate shared represented a reflection on a mentored inquiry project, as part of a teacher education course. Dorothy’s past questioning of “Had I failed as a teacher?” and “Had I been an effective teacher?” and thoughts of “Each day I felt as though I hadn’t achieve anything, that I hadn’t helped my students grow” during her first practicum seemed to have found an answer during this mentored inquiry project. Dorothy referred to what Williamson McDiarmid and Clevenger-Bright (2008) call “craft skills,” and stated that she became familiar with “standardized goal setting charts, templates and reflective memos” that helped the teaching and administrative staff in her school measure students’ growth.

Dorothy compared and contrasted her idea of reflection “at the personal level” and the newly discovered standardized “academic, behavioural and pedagogical goals that they actively track throughout the year.” These “black and white” documents demonstrated “school growth over time in relation to achieving school wide academic success” and seemed comforting for Dorothy, because they helped her measure her own success and effectiveness as a teacher. She also found comfort in her associate teacher’s words when she stated that “my associate teacher reassured me that . . . sometimes it takes months (or more!) for teachers to really see the effects of their teaching on their students.” Dorothy showed an understanding of reflection as a self-development tool, but also struggled with the idea of what type of reflection was better, “standardized” or “personal.” She understood that, “as teachers, we can never be perfect, yet always striving to better ourselves will help us better our schools and in the end, foster a community of students who are engaged and excited about their own learning.”

Defining diversity. The individual interview with Dorothy took place in her final and 5th year of her studies in the concurrent teacher education program, 1 month before graduation. In the beginning of the interview, when asked, "When you hear the word diversity, what does it mean to you?" Dorothy compared the rural environment she grew up in as a child with Toronto, a city where she moved to study. She stated that as a child she thought of diversity as "ethnicity primarily" and "people other than white people." Dorothy further noted that since she moved to Toronto diversity meant more than ethnicity and colour and also included "language" and culture and an "amalgamation of different traits and qualities."

In the interview, Dorothy also compared her schooling experience prior to enrolling in the teacher education program and her experience in the teacher education program in relation to diversity. The teacher recalled that in high school she "always felt a bit strange about being from an area where it's rare to meet somebody who is not Caucasian." Dorothy stated that while in the teacher education program she always displayed an interest in people coming from "Africa or South America or other places," but at the same time she felt embarrassed about not knowing more about these individuals. She noted, "I felt a little behind in that aspect of my development, in my learning." Dorothy was not comfortable asking many questions about diversity because she was concerned not "to offend anybody," and at the same time she was "afraid to come off as some rural 'Hillbilly' or someone who's never experienced other people, you know." She further stated that, "Coming into this program a lot of my assignments were reflective of what I experienced going through High School."

These statements above are indicative of the teacher candidate's ability to reflect on past experiences, to recognize the effect of those experiences, and to connect them to her learning and teaching. Even though Dorothy seemed concerned about not being able to choose the right teaching

materials for her students, she was also concerned about the content of her assignments and how they might reveal her limited experiences with diversity.

Developing conceptions of diversity in the teacher education program. Although the teacher candidate appeared to understand what influenced her knowledge of diversity when she stated, "My experiences growing up really limited my view on certain topics" during the interview, other statements indicated uncertainty in regards to what had helped her develop understandings of diversity and inclusion. The teacher candidate stated, for example, that:

> Since being in the program a lot has changed, and I am not sure if that's the program itself or a combination of factors which include moving to a large urban city and living in the downtown core and interacting with students from different backgrounds both educationally and ethnically speaking.

Dorothy also showed uncertainty about addressing diversity both in the classroom and outside the classroom, and about "learning to *act* like a teacher" (Feiman-Nemser, 2008, p. 698). She noted,

> It's interesting, I became more aware since being in the program, however at the same time there is still that apprehension of what's appropriate and what's not appropriate, in terms of bringing culture into the classroom as a teacher and also just in social situations. What's going too far? . . . I am still a bit nervous in some situations.

When asked to further elaborate on what helped her learn about diversity, Dorothy stated that "in the beginning I learnt from my family." Then, although she again expressed uncertainty, she pointed to a few more specific influences, such as courses, being out in practicum schools and seeing students, being out in the city of Toronto and interacting with people, and jobs she had held. Throughout the interview, nonetheless, Dorothy was hesitant to name what she leant about diversity in courses. Rather, she noted that the course assignment and projects increased her awareness about diversity and allowed her to "voice" what diversity meant to her. The teacher candidate observed that "people learn better by actually physically being in the environment" and stated that her practicum experiences that were spread

throughout the 5 years of the program, and which took place in varied schools, allowed her to realize how diverse schools could be.

When asked what aspects of diversity were taught in the program, Dorothy was evasive and stated that "when people think 'diversity' the first thing that comes up is race and colour, as I mentioned before. I am not sure how that came about." However, she then pointed to a few dimensions that she came to understand as being associated with diversity, "Some of those that I would not have thought under the diversity umbrella when I came here were things like age and social class." Further in the interview, when asked what aspects of diversity she found important to be addressed in the teacher education program, Dorothy responded in a general way by stating that "I guess that the answer that everyone wants to hear is that they are equally important." However, she observed that there were certain diversity dimensions that were addressed more than others:

> I think that in the program the way it is, and in society I think that more importance is placed on some of these, such as ethnicity, disability versus ability, places of origin and religion and faith are the big ones. And sexual orientation, that's really big in teacher education and school right now. I am not sure why.

Dorothy, as seen from this and other excerpts, continued to display uncertainty and elusiveness when asked to be more specific in her answers, although she was able to name diversity dimensions and provide some thoughts on their usage. When asked what diversity dimensions she found more challenging than others to understand, Dorothy noted that there was an overly positive "spin" on diversity from what she experienced, "I guess the concept of diversity is a positive thing. I don't mean to say that I think that diversity is a negative thing, but I think teacher education programs often put a solely positive spin on diversity." Dorothy also stated that at times this approach set up unrealistic expectations for new teachers going into classrooms and that she thought that it would not always have a "happy ending."

Dorothy further referred to her future teaching by stating that she was still nervous about getting to know her students and about being able to distinguish between "what might be an academic issue or what might just be something that they were taught at home in terms of behavior, classroom participation and learning." The overly positive "spin" in Dorothy's statements seemed to refer to a broader definition of diversity that included student backgrounds, learning styles and needs, and classroom management.

In most of her interview responses related to diversity Dorothy tended to use statements such as "I am not sure why" and "I am not sure." From her answers to the questions, it seemed that her uncertainty stemmed from her fear of not offending anyone and also from her tendency to be careful. For example, she stated that in a certain course "we had people leaving the class in clouds of frustrations because of the topics that were discussed and because of what their colleagues have said and their peers have said." She further elaborated that she thought that, when class discussions opened up, teachers would need "to be very careful because as much as you might feel you know your students, sometimes you never know what they are going to say, and sometimes you can go too far." Although Dorothy's responses, as well as our post interview notes, showed that she had a good grasp of what diversity meant and how she came to understand those meanings, her answers lead us to wonder how to explain the teacher candidate's hesitancy—to attribute it to her way of communicating or to gaps in her learning.

As seen from the detailed data presented above, Dorothy was committed to learning and teaching. Overall, the teacher candidate tended to show more concern for mastering her teachables and for her development as an effective teacher than for expanding her understanding of diversity conceptions. Nonetheless, as we followed the development of the teacher candidate as represented by her admission profile, reflections, and interview responses, we gained valuable insights into this teacher candidate' capacity building over time as she progresses through the 5-year teacher education program.

Data from reflections showed that the teacher candidate was learning about diversity, but that learning occurred within the larger teaching and learning process in the teacher education program. Dorothy's reflections were linked to varied experiences in the program and reflected the immediate influences of those components. Larkin (2010) also found that teacher candidates tended to reflect in their responses on what they experienced shortly before the interview sessions. As the teacher candidate moved through practica, we could see how the varied "agendas" of the contexts Dorothy was in influenced her thinking about teaching and learning: student achievement, motivation for student achievement, measuring student achievement and growth. Also, teacher growth and performance appeared to permeate her reflections in the 4th and 5th year in the teacher education program while in the context of qualifying practica.

Conclusion

This paper contributes to research on teacher capacity (teacher knowledge, skills, and dispositions) to meet the challenges and complexities of the students in increasingly diverse K–12 schools. To begin with, an overview of teacher capacity in studies that explores knowledge bases for teaching diverse student populations provided the foundation upon which to build this discussion and emphasized the salient need to address issues relating to inclusion and diversity in teacher education.

The premise of this research resides in the belief that the perspectives of those enrolled in the teacher education program, the teacher candidates, provide valid direction which can inform practice and policy. An examination of teacher education program descriptions or course listings alone would not have provided insights into how knowledge is developed and how individuals learn (Kitchen & Petrarca, 2015). Within the scope of a case study, progressive re-conceptualizations (Larkin, 2010) were identified in each of the 5 years of a concurrent teacher education program within the framework of knowledge bases for teaching (Feiman-Nemser, 2008; Sykes, 1990; Darling-Hammond, 1997). Analysis

of the above case shed light on capacities of current teacher graduates aimed at serving the needs of an increasingly diverse body of students by revealing how diversity conceptions develop in a teacher candidate coming from a specific context. The themes within the case also reflected a teacher candidate's re-conceptualizations of diversity within the larger teaching and learning process in a teacher education program. The study showed the complexity of individual learning paths in the concurrent teacher education program. Learning to *think*, to *know*, to *feel*, and to *act* as a teacher (Feiman-Nemser, 2008) are essential to transformation and change (Grant, 2008). This study revealed the centrality of developing a professional identity or learning how to *feel* like a teacher for Dorothy. Furthermore, acquiring subject matter knowledge was more important to her than concepts of diversity and inclusion. By focusing on a prospective teacher candidate's knowledge base or capacity development, we were able to contribute to research on how understandings, beliefs, and skills with respect to teaching of diverse student populations actually develop.

At issue is how to sustain teacher capacity development long after the teacher candidate's graduation from a teacher education program. Cochran-Smith and Lytle (2009) and Fullan (1999) point to the strengths of teachers assuming central participatory roles within professional development initiatives through a professional inquiry stance. This type of an exploration is reflective of the tradition of teachers asking their own questions and discerning patterns that are not always observed by others (Dana & Yendol-Hoppey, 2009).

In fact, Cochran-Smith and Lytle (2009) address the various efforts of progressive educators to construct alternative ways to approach teaching and learning and argue that the traditional knowledge base for teaching failed to account for the knowledge generated by educators (in this case, a teacher candidate). In keeping with the focus on developing criticality in a progressive scaffolding of ideas, concepts, and epistemologies, teacher candidate growth builds upon previous experience, confronts

conceptions, and, through reflection and revision, facilitates transformative pedagogy and practice. By reflecting on significant professional events, engaging in the interactive interplay between previous conceptions and new phenomena, and analyzing these circumstances, teacher candidates can focus on developing successful strategies which can potentially lead to effective pathways between practice and praxis, and, ultimately, to more robust understandings of diversity pedagogies. Furthermore, these pathways can create possibilities for deepening understanding about diversity and inclusion in relation to professional learning. Egbo (2009), Ball and Tyson (2011) and Mogadime (2011) address the issue of integrating multiple perspectives representative of the myriad of social, economic, and political agendas present in contemporary society. Within the context of developing and sustaining teacher capacity in inclusion and diversity, we posit that professional development has its beginnings rooted in teacher education programs and needs to be grown organically into educator's professional lives, shaping and moulding the re-conceptualizations necessary to embrace the complexities of practice and praxis in contemporary pedagogy.

While this study offers clarity in understanding future teachers' capacity development and sheds light on the challenges of developing concepts of diversity and inclusion, the scope of the analysis leaves room for further areas of exploration. At issue is the persistent concern in teacher education literature with the "kaleidoscope of notions" that inform teacher education programming (Wang, Lin, Spalding, Klecka, & Odell, 2011) and the myriad approaches to developing teachers with robust and well integrated conceptualizations in relation to diversity and inclusion. Contextual circumstances and structural differences in teacher education programs also factor in creating the kinds of transformative experiences documented in this study. On a final note, several questions remain pertinent following this analysis: How can teacher education curricula be continually redesigned to promote capacity building? To what extent do expanded or newly-acquired conceptions articulate with regulatory requirements for

teachers? How are the outcomes of this analysis applicable to post-graduate teacher education programs?

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Chapter 14: What Should Canada's Teachers Know? Or is that "Be Able to Do"?

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Abstract

In light of the holistic complexity of the notion of teacher capacity, which can only be fully developed and evaluated during practicum, and the shortcomings in this regard of most teacher education programs, this chapter describes an alternative approach at one Canadian university designed to better develop all aspects of teacher capacity—knowledge, dispositions, and practical teaching ability—in an integrated manner. This program is conceived of as a "practice-and-theory" approach to teacher education, based on principles of experiential ("realistic") learning and place-based education. The chapter notes specifically how this program seeks to address traditional shortcomings of most teacher education programs and considers implications of the results of the program, with particular regard to the evaluation of teacher capacity.

What Should Canada's Teachers Know? Or is that "Be Able to Do"?

> I have been impressed with the urgency of doing. Knowing is not enough; we must apply. Being willing is not enough; we must do. (Leonardo Da Vinci, 1452-1519)

> The goal of realistic teacher education is not to make student teachers into collectors of knowledge on teaching. We want them to become good teachers. (Fred Korthagen, 2001, p. 30)

Teacher education in Canada has undergone significant study in the past decade. Recently, the Canadian Associate for Teacher Education (CATE) has facilitated working groups on innovations in teacher preparation, on becoming a teacher, and on Canadian teacher education in the 21st century. Integral to these discussions is teacher capacities. This paper explores the theme of the CATE 8th working group: What Should Canada's Teachers Know? Teacher Capacities: Knowledge, Beliefs, and Skills. Specifically, we consider two questions: 1) How are teacher education programs held accountable for the capacities their teacher graduates possess? and 2) How are teacher capacities measured at any stage in their development?

As Grant (2008) stated in the introduction to his section of the *Handbook of Research on Teacher Education* on teacher capacity, he intended to "trouble" the discourse on teacher capacity. We also intend in this paper to "trouble" the discourse on teacher capacity, but in a way different from Grant. We first reveal shortcomings in the design of most Canadian teacher education programs that work against the full development of capacity in teacher candidates. We then describe an alternative—

and promising—approach being developed in one Canadian teacher education program at Mount Royal University. The central element in both points is practicum.

Unpacking the Notion of "Teacher Capacity"

Grant (2008) defines capacity as a combination of knowledge, skills, and dispositions. Indeed, such a notion has become common as part of the standards movement in recent years. Other terms are used, at times, in place of *capacity*, especially *competency*. We propose that these terms are basically interchangeable, since they both refer to the combined use of a range of resources (knowledge, skill, beliefs, materials, etc.) for effective practice. One such example of this notion of capacity or competency is the subtitle of Darling-Hammond and Bransford's (2005) major text, *Preparing Teachers for a Changing World: What Teachers Should Know and Be Able to Do* which emphasizes both knowing and doing. Such a stance reflects the recent awareness of the complexity of teachers' ability that leads to their effective and autonomous action in diverse and complex situations (e.g., Jonnaert, 2002; Lafortune, 2009). Peyser, Gerard, and Roegiers (2006) describe this notion of capacity as "the spontaneous mobilization of a set of resources in order to apprehend a situation and respond to it in a more or less relevant way" (p. 37). The set of resources mobilized into effective action by a competent professional can be knowledge, specific skills, values, materials, and so on. Yet it is only in a real-life professional context that this mobilization can take place: that is, in "work contexts and situations that are characterized by the undetermined, uncertainty, often urgency, and always by the need to find answers that have some level of originality as regards what is already known and what has already been done" (Esteves, 2009, p. 39). The major implication of these definitions is that a capacity is fully addressed and developed only when candidates are engaged in professional practice with a class of pupils—that is,

during practicum—thus privileging the practicum components of teacher education programs for developing and evaluating capacity, or competency.

This notion of competency reflects Schön's (1987) argument that scientific research can provide only limited guidance for professionals who are in the process of developing effective professional practice. Schön posits that such an approach cannot discover, teach, and help students apply all that proficient professionals need to know and be able to do in order to practice their profession competently and well. He claims that much of what research has helped us discover about professional practice informs us about lower-level and less important aspects of professional practice. What we know less about, he claims, is the highly complex, problematic, and open-ended aspects of professional practice: in other words, the situations for which there is no obvious right answer based in professional knowledge and the very aspects of practice that determine whether a professional conducts his or her practice well, even with "artistry," or not.

As an example, the Ministry of Education in Quebec has adopted an approach to teacher education based on a framework of professional teaching competencies, or capacities, that reflect the global, holistic, and integrated notion of competency discussed above (Ministère de l'Éducation du Québec, 2001). This set of competencies is mandated as exit competencies to be achieved by teacher candidates by the end of their teacher education program and which should form the underpinnings of teacher education programs in the province. Listing seven features, the Ministry explains that professional competency:

- exists in a real-life setting.
- follows a progression from simple to complex.
- is based on a set of resources.
- is based on the ability to mobilize resources in situations requiring professional action.

- is part of intentional practice.
- is demonstrated as a successful, effective, efficient, recurrent performance.
- is a project, an ongoing pursuit.

pp. 48–50

The ministry makes it clear in its wording of the competencies that it refers to actual professional practice with pupils. Here is its wording for the competency of classroom management: "To plan, organize, and supervise a *class* in such a way as to promote *students*' learning and social development" (italics ours). The ministry then goes on to indicate key features of a particular competency and levels of mastery of that competency expected by the end of a teacher education program—as the following table shows for the competency of classroom management (see Table 1). Such an unpacking of a competency reflects the global, holistic, and integrated nature of the competency and highlights the central place of practicum in its development and evaluation.

Table 1
Key features and mastery level of classroom management

Competency	Features	Level of Mastery
To plan, organize, and supervise a class in such a way as to promote students' learning and social development.	Develops and implements an efficient system for running regular classroom activities. Communicates clear requirements regarding appropriate school and social behaviour and makes sure that students meet those requirements. Involves students on an individual or group basis in setting standards for the smooth running of the class. Develops strategies for	Introduce and maintain routines that ensure the smooth running of regular classroom activities. Identify and correct organizational problems that hinder the smooth running of the class. Anticipate some of the organizational problems that hinder the smooth running of the class and plan measures to prevent them. Establish and apply methods

	preventing inappropriate behaviour and dealing effectively with it when it occurs. Maintains a classroom climate that is conducive to learning.	that can be used to solve problems with students who exhibit inappropriate behaviours.

Thus practicum becomes central to the notion of teacher capacity, since it is only during practicum that candidates can translate a full range of resources (knowledge, disposition, skill, etc.) into effective practice, or doing.

Shortcomings in the Design of Teacher Education Programs in Regard to Teacher Capacity

First, on-campus courses can address only the aspects of knowledge and perhaps disposition in regard to capacity. They cannot help candidates develop the skill of using knowledge and disposition to work effectively with a class of pupils. Practicum would be necessary for that goal. As Minet, Parlier, and de Witte (1994) conclude, "A sum of knowledge has never been a competency for action" (p. 31). In addition, on-campus courses would not be able to assess the development of full capacities, particularly the aspect of skill. Only mentor teachers and university supervisors would be in that position. Unfortunately, these professionals tend to be the least involved and the least supported in teacher education programs, yet they are responsible for the evaluation of full competencies on the part of teacher candidates (Rosean & Florio-Ruane, 2008).

Second, Russell and Dillon (2015) recently conducted a survey of the design of approximately 50 Canadian teacher education programs. Data was derived from information available on program web sites. While the nature of the information on the web sites varied a good deal from university to university, several trends were clearly present. The survey revealed that Canadian programs are

composed predominantly of course work, usually by ratios of 2:1 to 5:1, as measured by credit hours, thus leaving more limited time for practicum. Darling-Hammond's (2006) survey of several effective teacher education programs in the USA led her to conclude that a minimum amount of practicum necessary for an effective teacher education program would be 30 weeks. Russell and Dillon found no Canadian programs with at least 30 weeks of practicum.

Third, Russell and Dillon (2015) also found that the design of the large majority of Canadian programs could be described as "theory-into-practice." That is, course work is largely front-end loaded in a program to provide knowledge for candidates' subsequent application in practicum. For example, one 4-year program begins with 2 full years of course work, punctuated only by 2 weeks of classroom observation. The two final major practicums occur in Yars 3 (12 weeks) and 4 (7 weeks), with the final practicum at the very end of the program. Of the 120 credits in the program, only 20 are devoted to practicum, for a total of 24 weeks. Unfortunately, a great deal of research reveals the general ineffectiveness of such an approach, since candidates rarely use that knowledge in the development of their practice. That evidence is long-standing (Zeichner & Tabatchnick, 1981) and wide-spread (Clift & Brady, 2005; Perry & Power, 2004; Wideen, Mayer-Smith, & Moon, 1998.). Instead, candidates tend to teach as they were taught or to be socialized into practices that prevail in school-based contexts (Cole, 1997; Tigchelaar & Korthagen, 2004). Clift & Brady (2005) note that on-campus courses can influence students' thinking about practice, "but implementing practice based on beliefs is neither linear nor simple" (p. 15). In fact, the research they reviewed provided considerable evidence of the difficulty of moving from intention to action. Students resisted adopting teaching practices recommended by their programs if they found them difficult or if the practices contradicted their existing beliefs and practices, even when their student teaching situation modeled the recommended practices, reinforcing what Munby and Russell (1994) describe as an *authority of experience*. It was easiest for students to adopt

recommended practices in their teaching when their field experiences modeled those practices, though even in these situations students at times still experienced conflicting perspectives.

Our conclusion is that the accountability for the development and measurement of candidates' full capacities is left in the hands of mentor teachers and university supervisors and that the rest of the program contributes little to those candidate capacities. Furthermore, regardless of what knowledge is targeted in course work in teacher education programs, there is little chance of it being operationalized in the development of teacher candidate skills in the classroom. For that to happen, the design of teacher education programs would have to be reformed to an approach that might be described as "practice-and-theory" in which practicum is early and extensive in a program and concurrently integrated with course work. A new program at Mount Royal University in Canada is working to facilitate a pedagogical program specifically in response to these aforementioned issues.

An Example of a "Practice-and-Theory" Approach to Teacher Education

The example in this section reflects the call by members of the working group for rich descriptions of teacher education programs that explicitly address the measurement of and accountability for capacities. Conceptual frameworks of realistic approaches to teacher education and placed-based education provide a context for the program, a description of a practice-and-theory approach is provided, and empirical findings are presented. We then explicate our attempt to address the three shortcomings identified above.

Theoretical Framework: A Realistic, Place-Based Approach

As teacher educators, we are involved in the design and implementation of a new 4-year bachelor of education program at Mount Royal University that allows us to consider possibilities of an alternative, "realistic" approach to teacher education (Korthagen, 2001) that starts, not with theory (such

as pre-determined knowledge "shoulds"), but rather with practical problems faced by teacher candidates (that is, their own determination of their "shoulds"). This approach is based on experiential learning and the promotion of reflection/analysis on teacher candidates' teaching experiences through a constructivist learning process where "the student develops his or her knowledge in a process of reflection on practical situations, which creates a concern and a personal need for learning" (p. 15). The role of the teacher educator is not to impart theory as guidance to teacher candidates, but rather to foster phronesis using teacher candidates' practical experience as the base. *Phronesis* refers to a kind of practical wisdom that is concerned with the important specifics of particular situations, as a way of not only understanding them well, but of deciding how to respond to them well.

The intent of a realistic approach to teacher education is to transform (Cranton, 2006; Mezirow 1991, 1995, 1997; Mezirow, 2000) teaching experience into knowledge (Kolb, 1984) that reflects the social, political, and cultural reality of the educational (Kincheloe, 2003; O'Connor, 2016) and to eventually help teacher candidates integrate public theories of education (*episteme*) with their developing practical wisdom. Such an approach has roots in experiential education (Dewey, 1938) and Schön's (1987) call for a "reflective practicum" approach to the education of professionals. Experiential education is the process of learning by doing that begins with the learner engaging in direct experience followed by reflection (Dewey, 1915). In our context, it places major importance on the knowledge of teacher candidates derived from a good deal of experiential learning (Dewey, 1938**)**. By immersing themselves in direct experience, teacher candidates make discoveries and experiment with knowledge themselves instead of exclusively hearing or reading about the experiences of others **(**Kolb & Lewis, 1986**)**. Teacher candidates also reflect on their experiences, with the goal of developing new skills, new attitudes, and new theories or ways of thinking. They test and refine that knowledge in socio-constructivist interaction with each other and with mentor teachers and teacher educators who

accompany them in their learning (Kraft & Sakofs, 1988). This process of experiential learning is a continuous process alternating between action in experience and opportunities to reflect upon that experience to make sense of it, and then returning to action to further test out and modify emerging hypotheses, followed by further reflection upon the new experience, and so on. Dewey (1915) sees learning as a dialectic process between experience on the one hand and concepts, observations, and action on the other.

Place-based education is an approach to teaching that is grounded in the context of community (Raffan, 1995; Theobald & Curtiss, 2000). It emerges from the particular attributes of a place. The content is specific to the geography, ecology, sociology, politics, and other dynamics of that place (Penetito, 2009; Woodhouse & Knapp, 2000). It provides a purpose to the knowledge and reasoning taught in schools, it offers a contextual framework for much of the curriculum by giving meaning to the studies, and it engages teacher candidates in the conditions of their own realities (O'Connor & Sharp, 2013). In the context of our research, place-based education integrates teacher candidates' professional community (practice) and targeted coursework (theory).

Description of the Bachelor of Education Degree Program, Mount Royal University

In our 4-year bachelor of education program, teacher candidates in their 1st semester of their 1st year spend 1/2 day per week in a classroom and 3 hours a week in an on-campus education lecture. In order to encourage teacher candidates to engage in a realistic approach, we have structured the course into 2-week blocks. Prior to the beginning of each 2-week block, teacher candidates are presented with an article to read and an open-ended prompt to respond to in an online discussion forum. The readings and discussion prompts reflect the five areas of competencies in our program: planning for learning, facilitating learning, assessment of learning, classroom environment, and professional responsibilities. In the on-campus class, small groups of critical friends discuss their responses to the prompt with respect to

teachers' roles within school systems. This is followed later in the week by an in-school seminar where a cohort of six to twelve teacher candidates are invited to reflect on the discussion prompts within the context of their practice. The seminar is scheduled at the beginning or end of the 1/2-day field experience of the 1st week of the 2-week block. At the end of the field experience 1/2-day, teacher candidates are asked to complete journal entries on a range of related topics, and critical friends are invited to provide a response to these.

The on-campus discussion with critical friends in Week 2 provides an opportunity for teacher candidates to discuss their responses to the critical friends and to the journal entries. Teacher candidates complete journal entries focused on their own roles and responsibilities within the teaching profession following the weekly field experience. During the school-based seminars, teacher candidates are invited to reflect on theoretical readings and discussion prompts within the context of their practice (see summary of the process in Table 2)

Table 2
Cycle of pedagogies supporting a realistic approach

Week 1	**Week 2**
On-line pre-reading and discussion board response	On-line peer discussion board response
On-campus small group discussion	On-campus small group discussion
In-school seminar	
In-school field experience	In-school field experience
On-line journal entry	On-line journal entry

In addition to designing and implementing a realistic approach to teacher education in the 1st year of our program, faculty members engaged in bi-weekly meetings where we crafted our vision, articulated our values, and mapped program capacities onto specific courses in order to create a curriculum of learning within our program. As research findings emerge we are able to integrate these into a program design that is consistent with our vision and values. Our initial findings prompted us to

continue in-school seminars and 1/2-day field experiences for the 2nd semester of Year 1 and design similar experiences for teacher candidates in Year 2 of our program.

In Year 2 of the program, we have been unable to introduce time for in-school seminars but have introduced school-based assignments to provide opportunities for our teacher candidates to reflect on theory–practice links. While teacher candidates continue to work in the schools 1/2 day per week, course instructors are not in schools to supervise them and thus depend on journal entries, class discussions, portfolios, and course assignments for assessment of teacher capacities.

In Year 3 of the program, we designed an integrated practicum semester and worked with community partners to offer engagement in field studies for our teacher candidates and pupils from our community schools. During the field studies at a conservation area, a science centre, and a children's camp, our teacher candidates engage in integrated learning opportunities across subject areas, design learning experiences for pupils, and facilitate integrated plans with pupils. Course instructors supervise the practicum and in-school seminars resume in a pattern similar to the one used in Year 1 of the program and described in the table above. During this stage of the implementation and in anticipation of an integrated practicum semester in Year 4 of our program, we have started to establish formal university–school–community partnerships by working with mentor teachers, principals, district, and community leaders to co-construct learning opportunities that foster realistic experiences for all participants. We are currently conducting a pilot study of an integrated semester consisting of weekly seminars, a capstone research project, and two curriculum and instruction courses taught by faculty in schools within a 15-week practicum for twenty-four teacher candidates in their final year of the program. Research findings from this study will inform the design of the final year of our program.

An overview of the program with notes on teacher capacity is provided below (see Table 3). Please note that in addition to twenty required education courses, teacher candidates must complete

eight liberal arts courses, eight minor non-education courses, two non-education elective courses, and two education elective courses.

Table 3:
Overview of the Bachelor of Education degree program, Mount Royal University

Program year	**Education courses** **Teacher capacity: measurement and accountability**	**Transformative pedagogies**
1	Introduction to Teaching – Part 1 + Field Experience (FE) Introduction to Teaching – Part 2 + FE Educational Psychology Teacher capacity measured by faculty and sessional instructors with input from mentor teachers (MT) Faculty and sessional instructors accountable for teacher capacity through programmatic outcomes mapped to courses	• cohort placements • in-school seminars • field experiences of a half day per week for each semester • professional learning plans • journal reflections • faculty supervision of field experiences • critical friend discussions
2	Pedagogical Technologies Language Development & Literacy + FE Assessment and Evaluation + FE Teacher capacity measured by faculty and sessional instructors with input from mentor teachers (MT) Faculty and sessional instructors accountable for teacher capacity through programmatic outcomes mapped to courses	• school-based assignments • mini research inquiry project • cohort placements • field experiences of a half day per week for each semester • professional learning plans • journal reflections
3	Curriculum and Instruction (C&I): Language Arts C&I – Drama C&I – Science C&I – Mathematics Practicum 1(25 days) Aboriginal Education Exceptional Students Teacher capacity co-measured by MT, teacher	• integrated C&I courses • integrated field studies with community partners • cohort placements • in-school seminars • professional learning plans • journal reflections • faculty supervision of practicum

	candidates, and faculty/sessional supervisors in practicum Faculty and sessional instructors accountable for teacher capacity through programmatic outcomes mapped to courses	
4	C&I – Physical Education C&I – Social Studies C&I – Art C&I – Music Capstone Inquiry Project Practicum 2 (45-70 days) Teacher capacity co-measured by MT, teacher candidates, and faculty/sessional supervisors in practicum Faculty and sessional instructors accountable for teacher capacity through programmatic outcomes mapped to courses	• school partners • inquiry project • integrated C&I courses taught in schools • cohort placements • in-school seminars • professional learning plans • journal reflections • faculty supervision of practicum

The design of a new program at Mount Royal University provided a unique opportunity to investigate the impact of transformative pedagogies in relation to the development of teacher capacities. In the next section, we discuss our attempts to address the three shortcomings identified in the previous section in relation to the measurement of and accountability for capacities.

Impact of a Realistic Approach to Teacher Education in Regard to Teacher Capacity

We are in the 3rd year of a 6-year longitudinal study that investigates the impact of transformative pedagogies by mentor teachers and teacher educators throughout teacher candidates' field experiences in Years 1 and 2 of the program, their practicum experiences in Years 3 and 4 of the program, and their initial years of teaching after graduation. The first phase of the project took place in fall 2013. As part of a larger study, we engaged in a self-study (Kitchen & Russell, 2012; Kosnik, Freese, Samaras, & Beck, 2006; Loughran & Russell, 2002; Tidwell, Heston, & Fitzgerald, 2009) to investigate the impact of our transformative pedagogies on teacher capacity. Within this study, we

address two research questions: 1) How are teacher education programs held accountable for the capacities their teacher graduates possess? and 2) How are teacher capacities measured at any stage in their development?

All teacher candidates enrolling in the final semester of their program were asked to choose between the pilot of an integrated 15-week practicum and a traditional model where they had 4 weeks of on-campus classes, a 9-week practicum, and a return to campus for 2 weeks of classes. Teacher candidates selected to participate in the pilot study were required to justify their choice. School sites were selected based on prior planning meetings with school administrators and mentor teachers and their willingness to share our vision of an integrated theory-practice, realistic approach to teacher education. The pilot study was designed as an integrated experience where a capstone research project and two curriculum and instruction courses were school-based. Over a period of 15 weeks, a selected group of teacher candidates were placed in cohorts of six in four schools and engaged in courses 2 afternoons a week at various school sites. Mid-way through the 2nd month, course work was reduced to 1 afternoon a week. Weekly seminars held before or after school were facilitated by Gladys and Kevin, the faculty supervisors. We designed a curriculum of readings consistent with a realistic approach intended to develop teacher capacity in response to practice-based problems. Mentor teachers and school administrators were invited to participate and often conversations extended beyond the seminar.

The participants in this study included the three authors, 10 teacher candidates, 24 mentor teachers, and six school administrators. During the 2014–2015 academic year, we conducted and recorded six focus group conversations with administrators and teachers from individual schools and two joint meetings with administrators from four partner schools. As researchers, we engaged in bi-monthly collaborative research conversations, exchanged numerous e-mails, and kept research notes about our experiences. At the conclusion of the year, we interviewed 10 teacher candidates and collected

artifacts of their learning through course assignments. Data was coded across these sites according to emerging themes that related to our research focus on teacher capacity (Strauss, 1987). For this paper, we focus on data collected in the 10 interviews with teacher candidates.

Our findings suggest that seminars were effective in holding us accountable for the capacities of our teacher candidates and for measuring teacher capacity. Teacher candidates identified that seminars prompted reflection on practice in the context of a theoretical conversation. One participant talked about solving her struggle with assessment of student work by researching approaches to summative and formative assessment and co-constructing knowledge with her mentor teacher (Participant 1). Another suggested that the seminar was extremely helpful for applying "more of the practical to the theory" and found that "if we are struggling with something we often just put it out there and someone will come up with an idea" (Participant 3). Accountability for teacher capacity was shared between the university and school partners as seminar discussions contributed to a deeper understanding of teacher candidates' thinking. This informed the co-assessment and measurement of teacher capacity as mentor teachers, teacher candidates, and faculty supervisors shared common experiences of learning within the seminar. Indeed, a perspective articulated by one teacher candidate reflected a common theme: "We have such ownership for our learning" (Participant 4).

Emerging results indicate that theory was set alongside practical experiences as points of reflection and reminders of who teacher candidates were becoming as professionals. Candidates learned how to learn from their teaching experience through a cycle of action and reflection. One teacher candidate stated that seminars were important: "There were lots of pedagogical thinking things that cued me in, 'Oh, am I actually doing this?' . . . those little checkpoints, those little theoretical things [are important] because it is so easy to lose yourself in all the other things that you need to improve on" (Participant 5).

Another finding was that our prioritizing of the practicum contributed to a sharing of responsibility for developing and measuring teacher capacity. Initial results indicate that implementing a realistic approach provided numerous opportunities for teacher candidates to develop their capacities. Many spoke about the shift in their focus from themselves to their students: "Those little things are irrelevant now, it is like, 'Did the students learn?' and that is the bigger question, not more like, 'How did I do?'" (Participant 1). Another commented, "Just being able to not be as selfish about my lessons, right? It is not about you; it is not about me, it is about what I have done for the students" (Participant 2). Faculty members and mentor teachers were instrumental in helping teacher candidates shift from a student identity to a professional identity. The measurement and accountability for teacher capacity shifted to the teacher candidate. Most teacher candidates noted their change in identity:

> I was more willing to step outside the box and try something that I think of or I come up with because it is what I came up with, whereas here [University] I would be more cautious and . . . I don't know why I was like that but I was in my learning, like if I was to hand something in . . . I wanted to align with my teacher's ideas. . . . You try to cater to the teacher and I don't want my students to cater their assignment to me and so I don't know why I did that. (Participant 3)

A Theory-and-Practice Model

The common use of the terms "theory" and "practice" in teacher education contributes to the notion that they are mutually exclusive. However, we believe that they are inseparable. All teacher candidates have developed some kind of theory about all aspects of their experience and all practice is driven by those theoretical guidelines. The distinction between theory and practice in teacher education seems to highlight a disconnection between the abstract guidelines offered for teaching in teacher education courses and teacher candidates' experience of the insufficiency of these guidelines when encountering the complexity of the classroom. What we seek to investigate are the relationships of theory-to-practice, practice-to-theory, and practice-and-theory.

Schön's (1987) reflective practice theoretical stance of knowing-in-action informs his proposal that the practicum should be at the heart of teacher education programs. Knowing-in-action refers to teacher candidates' intuitive wisdom that allows them to adjust their practice to the unfolding complexities of the classroom environment. Reflection becomes an integral part of a realistic experience of teacher education as teacher candidates begin to articulate their practical knowledge. Schön suggests that a reflective practicum depends on the quality of interaction between mentor teachers, teacher educators, and teacher candidates and among teacher candidates. This is enhanced by extensive opportunities for dialogue and reflection while teacher candidates are engaged in extensive practicum experiences.

Returning to the Notion of "Teacher Capacity"

Teacher capacities are indeed measureable by both university faculty members and members of the profession. Rather than shifting the assessment of teacher capacity to mentor teachers and other members of the profession, we have deliberately privileged practicum experiences by linking supervision of practicum by faculty members to courses they instruct. We are held accountable for the capacities our teacher candidates are developing by our school partners. Thus, in our self-study, a shared responsibility for developing and assessing teacher capacities emerged.

We have found that a realistic approach focused on practice and embedded in an integrated practicum, can facilitate development of all aspects of capacity in teacher candidates—knowledge, skill, and disposition. Integrated courses and seminars specifically ask teacher candidates to consider their pedagogy as they link practice-and-theory through examples from their practicum placements in an ongoing cycle of action and reflection/analysis.

We posit that typical knowledge-centered approaches to teacher education need to be "turned on their head" (National Council for Accreditation of Teacher Education, 2010) to become practice-centered approaches, if we are to address and foster the development of complete, integrated capacities, or competencies, in our teacher candidates. In such a way, teacher candidates can influence and shape their teacher education curriculum by "negotiating" (Boomer, 1992) it with teacher educators, who not only direct and transmit but also listen and respond, helping candidates to learn from their teaching experience.

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Part IV

Are the capacities of current teacher graduates serving the needs of an increasingly diverse, technologically immersed body of K-12 students? How are traditionally marginalized students influencing the capacities new teachers need?

Chapter 15: Teaching in a Digital Society: Current Teachers' Perceptions of Meeting the Diverse Needs of All Learners

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Abstract

In today's classrooms, current teacher graduates find themselves teaching an increasingly diverse, technologically immersed student population. Using a Universal Design for Learning (UDL) pedagogical framework that includes digital technologies allows teachers to address the cognitive, social and emotional variability of all learners in new and flexible ways. UDL is an innovative framework for creating a culture of learning in an inclusive environment. A UDL framework involves innovative assistive technology that is organized around a set of principles, that works synergistically, and that involves multiple means of engagement, representation, and action and expression. This paper is based on a qualitative study developed by the researchers to examine recent teacher graduates' perceptions of their experiences using UDL principles to create an environment that supports the unique learning variability of a wide range of technologically immersed learners, including marginalized students. The findings of the study demonstrate that recent graduates recognize the importance of a UDL framework for meeting the diverse needs of all students but are struggling with the implementation process. The study adds to the body of research exploring the ongoing transformation of teaching practices to reflect inclusion-focused pedagogy in Canadian classrooms.

Teaching in a Digital Society: Current Teachers' Perceptions of Meeting the Diverse Needs of All Learners

Today's inclusive classrooms consist of students from diverse populations with varying interests, abilities and needs. There is an ongoing movement towards inclusivity of all students in the regular classrooms (Bender, 2008, p. 38; McGuire, Scott, & Shaw, 2006; Meyer & Rose, 2000). This movement has enhanced the growing recognition of the need for current teacher graduates to provide classroom instruction that meets the range of varying individual needs of a population of students that are immersed in our technological society. Researchers suggest that the implementation of a Universal Design of Learning (UDL) framework is needed if teachers are to create inclusive environments in their classrooms (Rao, Ok, & Bryant, 2014; Vitelli, 2015) and draw upon the many technological advances to support students' learning. Understanding and implementing a UDL framework that includes assistive technology can support current teacher graduates in structuring their classes for differentiating instruction (Bender, 2008).

UDL is a research-based pedagogical framework for designing a learning environment that will provide access to learning for all students (McGuire et al., 2006). The term *universal design* was coined by architect Ronald Mace, who is considered the founder of the Universal Design movement for architectural designs (Rose & Dalton, 2009). By the 1980s, the architectural requirements began to call for spaces and buildings designed for everyone, rather than retrofitted to accommodate persons with physical disabilities. Later, the founders of UDL drew upon the philosophy of universal accessibility to promote a universal learning environment accessible to all learners. The political support for a universal design for learning was directly related to the disability rights movement. In the United States, the Individuals with Disabilities Act, established in 1975 and amended in 1997 and 2004, protects the rights

of children with disabilities, ensuring they have access to free and appropriate education in the least restrictive environment (Meyer & Rose, 2000; Rao et al., 2014; Vitelli, 2015). The 2004 revision of the act actually refers to the universal design in the Assistive Technology Act, Section 602 (35) (McGuire et al., 2006). In Canada, the 1977 Canadian Rights Act also states that no one should be discriminated against for physical or mental ability (Hutchinson, 2014). As stated by many researchers, the movement towards a learning environment that was accessible to all learners was necessary for some, but beneficial for all (Edyburn, 2010; Katz, 2012). This approach recognizes the need for accommodations for learners with disabilities to access the learning, but it also values the individuality of all learners and their interest in using technological devices.

The purpose of this study is to explore recent teacher education graduates' perceptions of their experiences using the UDL pedagogical framework to create an inclusive environment that supports the learning of an increasingly diverse, technologically immersed student population.

Universal Design for Learning

UDL is a term used to designate a pedagogical framework developed by co-founders David Rose and Anne Meyer, as well as other members at the Centre for Applied Special Technology (CAST) (Edyburn, 2010; Glass, Meyer, & Rose, 2013). UDL is an innovative approach to the design of the learning environment that:

> a) provides flexibility in the ways information is presented, in the ways students respond or demonstrate knowledge and skills, and in the ways students are engaged; and b) reduces barriers in instruction, provides appropriate accommodations, supports, and challenges, and maintains high achievement expectations for all students, including students with disabilities and students who are limited English proficient. (CAST, 2015a, para. 5)

The working definition of UDL's pedagogical framework is "a research-based set of principles to guide the design of learning environments that are accessible and effective for all" (CAST, 2015b). Since the 1980s, CAST has conducted research in different ways to make learning accessible for students with diverse learning needs (Meyer & Rose, 2000). Assistive technology is also a part of this research. UDL is regarded as the framework to "serve as the vehicle to bring together special and general education teachers in delivering educational services to all learners in one general education classroom" (Courey, Tappe, Siker, & LePage, 2012, p. 11), thereby providing curriculum guidelines, instruction and assessment within a learning environment that is flexible and adaptable to all learners (McGuire et al., 2006).

The framework devised by CAST is used to improve and optimize both teaching and learning for all, and is based on three spatially and functionally distinguishable systems of the brain: recognition (identifying patterns), strategic (generating patterns), and affective (establishing importance and motivation) (Meyer & Rose, 2000, p. 40). Katz (2015) notes that "by definition, a universally designed pedagogy must be flexible in its implementation, as what provides access for one student, class, or community may differ for another" (p. 7).

Principles and Implementation Strategies

The UDL framework is comprised of three main principles with nine guidelines and 31 checkpoints (Rao et al., 2014). The principles originated from protocols used by architects (Hutchinson, 2014; Meyer & Rose, 2000). The three guiding principles are multiple means of engagement, representation, and action and expression (CAST, 2015). Each of these principles highlights ways educators can design flexible curriculum planning that facilitates and supports diverse learners (Rao et al., 2014).

Engagement. Engagement refers to the *why* of learning, and the need to provide purpose and meaning to motivate the learner (CAST, 2015b; Glass et al., 2013). It brings together the affective network of the brain (Glass et al., 2013; Nelson, 2014) and involves discovering students' interests and motivating them "to learn through creative, hands-on, and meaningful instruction" (Courey et al., 2012, p. 10). An essential feature to engagement is feedback, as "feedback is a necessary catalyst for self-regulated, effortful, and persistent learning behavior" (Rappolt-Schlichtmann et al., 2013, p. 1212).

Representation. Representation refers to the *what* of learning, focusing on the presentation of content in multiple ways (CAST, 2015b; Glass et al., 2013), and supports learning in the recognition networks of our brain (Glass et al., 2013; Nelson, 2014). It "refers to designing instructional materials that make content accessible to the greatest number of diverse learners" (Courey et al., 2012, p. 10).

Action and expression. The final principle, action and expression, refers to the *how* of learning, and focuses multiple ways students can express their knowledge (CAST, 2015b; Glass et al., 2013), which corresponds to the strategic network of our brain (Glass et al., 2013; Nelson, 2014). This principle refers to the different means of communicating and demonstrating their learning that go beyond the traditional paper and pencil assignments (Courey et al., 2012). This aspect of learning "allows students to practice how to plan, retain attention, problem-solve, reason, initiate and monitor their own activities" (Nelson, 2014, p. 14).

Using a UDL framework, teachers plan the curriculum and the learning environment (Nelson, 2014), based on UDL's commitment to ensure "best practices in all educational fields—practices that prompt inclusive curricular design and effective, data-based decision making" (Glass et al., 2013, p. 101). Teachers begin their planning by studying the learners' profiles and then providing flexible plans to meet the range of learning needs. For instance, concepts can be taught through the use of videos,

audio texts, and diagrams, as ways for students to interpret concepts, express their learning and actively engage and access all the components of the curriculum (Courey et al., 2012).

UDL is also recognized as an innovative approach to implementing different technological tools that allows educators to accommodate for learner differences (Meo, 2008). Use of this framework with assistive technology was found to enhance teachers' abilities to address the variability of students where differences in learning were present in "perception, understanding, expression and engagement" (Chita-Tegmark, Gravel, Serpa, de Lourdes, Domings, & Rose, 2012, p. 18). Rappolt-Schlichtmann et al. (2013) note that using such technology can overcome learning barriers and support the learning capabilities of students more effectively than just using the static, or traditional, learning tools. For example:

> Digital environments provide the necessary infrastructure and flexibility to allow for the creation of accessible, highly effective apprenticeship environments where students are actively guided in the process of constructing meaning through the provision of just-in-time feedback and contextual supports. (Rappolt-Schlichtmann et al., 2013, p. 1211)

In this way, teachers are provided with the flexible tools to create and support the differentiated learning experiences of all of their students (Rappolt-Schlichtmann et al., 2013), which promote teachers' appreciation of the value of technology in providing access to and engagement of all students (Edyburn, 2010). Benefits to the students can include aspects such as text-speech technology, word-by-word English translation, alt text and long descriptions of images, keyboard accessibility, and multimedia glossaries to support vocabulary use and development (Rappolt-Schlichtmann et al., 2013).

UDL is an innovative framework that that can range from no tech to state-of-the-art technology. It is an approach that is becoming recognized globally as a framework that has the potential to create a mind shift in the way that we teach and to enhance our abilities to support all learners. However, it is

critical that we explore the ways in which educators are using UDL to develop methods, materials and assessments to meet the varied needs of the learners. One of the issues in the implementation of UDL principles is that more attention needs to be given to how teachers are designing instruction to ensure that diverse learners are successful (Edyburn, 2010). The Maryland UDL Task Force (Vitelli, 2015) also reported educators' concerns about the availability of time and materials needed in order to implement UDL principles into their teaching practices.

As fundamental as design is to UDL, the question remains whether teachers can function effectively as instructional designers considering the many daily demands on teachers (Edyburn, 2010) associated with serving the needs of an increasingly diverse body of K–12 students. Edyburn (2010) suggests that the transition from the advocacy phase to the accommodation stage in developing and implementing UDL strategies leaves us to "our own devices to try to apply the UDL principles to create more accessible accommodations" (pp. 35–36); and this is the reason why many are struggling to achieve the potential of UDL within the limitations of the design and product development (Edyburn, 2010). Hutchinson (2014) notes that as universal design and assistive technology have similar purposes in reducing physical and attitudinal barriers between people with and without disabilities, educators often focus on the technology rather than the need to integrate the technology as a tool to accommodate learners in a multitude of ways. As Rao et al. (2014) note:

> the current literature is starting to give definition and shape to what a UDL educational model-based project or intervention looks like, but eventually researchers will need to address whether instruction incorporating UDL actually causes better results than conventional lessons and courses. (p. 164)

Given the many benefits of using a UDL framework but also acknowledging the challenges for teachers in the implementation process, this study explores current teacher graduates' perceptions of UDL and their preparedness to implement UDL into their teaching practices.

Purpose of the Study/Research Questions

This paper is based on a qualitative study developed by the researchers to examine current teacher graduates' perceptions of UDL and their preparedness to implement UDL principles that support unique learning styles of a wide range of learners, including marginalized student populations. The study explores the following overarching research questions:

1. What are current Canadian teacher graduates' experiences using Universal Design for Learning as a pedagogical approach in their teaching practices?
2. What are their perceptions of the benefits and challenges when implementing UDL in their teaching practices?

The research takes place within a tradition of social research which states that reality is socially constructed (Berger & Luckmann, 1972), and that the processes and dynamics in that construction and reconstruction of meaning are open to inquiry. As researchers, we subscribe to the view that reality is socially constructed via the lived experiences of people (McGregor & Murnane, 2010; Wiersma & Jurs, 2009) and through the interaction of individuals (Grix, 2004). This study employed a qualitative research design to explore recent teacher graduates' perceptions of benefits and challenges of implementing UDL. Qualitative research paradigms emphasize the social construction of knowledge and allow the voices of the participants to be the central point of the research (Creswell, 2003). Butler-Kisber (2010) describes a constructivist epistemological stance as the stance that "accepts that there are multiple ways of understanding/knowing the world" (p. 7) and recognizes that there is no such thing as a single reality.

According to Hesse-Biber and Leavy (2006), a researcher's epistemological position, influences all aspects of his or her process, including "topic selection, question formulation, method selection, theoretical backdrop and methodology" (p. 13). Moreover, they continue to explain that researcher's "epistemological beliefs are enacted through [one's] theoretical frame" (p. 17). Hence, all decisions related to the study—the topic of inquiry, the research design, the research site, and all aspects of how this study is conducted—emerged as a result of the researcher's epistemological stance. The study is concerned with meanings and understandings the participants give to the world in which they live, and emphasizes the role language plays in constructing reality. The researchers depended on the participants' interpretations of their lived experiences and tried to "capture the participants' language and point of view" (Wiersma & Jurs, 2009). The research was based on an inductive logic aimed at creating contextualized findings and at credible representation of the interpretations of the participants. Participants in the study included 15 participants with 2 to 5 years of experience who were teaching in schools in Eastern Canada in both rural and urban areas.

Two qualitative data collecting instruments were used: a) an individual, written questionnaire and b) one-on-one interviews. A written questionnaire, developed by the researchers, was completed by the 15 teachers. Five teachers consented to individual interviews. The questionnaires were coded and analyzed using an inductive approach (Ristock & Pennell, 1996; Reinharz, 1992) that identified patterns, similarities, and repetitive and shared experiences. This coded data was then grouped into categories that allowed for key themes to emerge. This information from the questionnaires was used to foster discussion at the interviews. The interviews were audio-recorded and transcribed. A thematic analysis of the transcripts was conducted following the same processes as the written questionnaire. According to Ristock and Pennell (1996), using multiple methods to gather data can enrich the data and enhance validity. This

approach allows the researchers to explore not only the *what* and *how* of a topic but also the reasoning behind the participants' contributions.

Findings and Discussion

Three key themes emerged from the study: a) generating a mind shift in teaching that challenges the 'typical' view of teaching and learning and what is considered a 'normal learner'; b) advantages of using UDL for providing multiple means of instruction; and c) barriers to implementing the UDL pedagogical approach. These themes are examined in detail and supported by verbatim quotes of participants that illustrate their perceptions and experiences.

Generating a Mind Shift in Teaching That Challenges the 'Typical' View of Teaching

Inclusion was accepted by all the teachers in our study as being a central pillar of their teaching practice; however, all the participants also reported various degrees of experience and understanding of UDL principles and guidelines as a way to make their classrooms inclusive for all students. In the words of the participants:

- My introduction to UDL was very recent. I have since spent a year learning about UDL principles and implementing some aspects into my classroom practice.
- I feel it has become an expectation put on teachers but it works. With the high number of Individual Program Plans in my board we need it.
- UDL is something that I have always tried to incorporate. I think that should never be an afterthought, but sometimes you realize how you can improve upon this after a lesson.
- I would love to learn much more about UDL. I have had a great introduction but I feel it is such a vast area to explore that I've only touched the surface.

- I have just started using a UDL approach in the classroom, but I need more in-class experience.

Participants reported using UDL-related strategies such as differentiated instruction and choice boards, as well as plenty of opportunities for student choice, such as selecting the modality of assignment submissions. The participants also stated that when they used strategies like these in their practice, they felt that students were more engaged in class.

The UDL framework promotes a paradigm shift in teaching to designing a universally accessible learning environment. This shift however, requires significant professional development of all teachers including current teacher graduates (Edyburn, 2010), particularly in the area of assistive technology, if teachers are to meet the needs of an increasingly diverse, technologically immersed body of K–12 students. Schwanke, Smith, and Edyburn (2001) advance the notion that there are three stages of development with respect to implementing UDL prinicples/guidelines. These stages are advocacy, accommodation, and accessibility. Advocacy raises awareness of diverse needs, motivates the participants to make changes, and eventually leads to accommodations. The accommodation stage is triggered by individual requests that emerge from the awareness phase. Accessibility is the final stage of the curriculum that promotes access for diverse learners. Additional changes must be included in order to make accessibility universal, as suggested by its name. Such changes are both tangible (e.g., infrastructure, technology, software) and intangible (e.g., performance supports, teachers' attitude).

Edyburn (2010) mentions the general misconception that UDL is another form of teaching. He states that the literature is flush with such phrases as "universal design for learning is just good teaching" or "it is like what you have always done" (Orkwis & McLane, 1998). Some of the participants shared that initially they viewed UDL as a "common sense approach" that they have been practicing for years. As one of the teachers noted:

> I think I've been practicing UDL before it had a name. I believe in choice and letting students play to their strengths. However, after using it for the past year I have a broadened view and more skills to make teaching ever more accessible.

As posited by Rose and Meyer (2006) and supported by other researchers and practitioners, the drive for UDL has brought about a change in educational thought in terms of the means of making learning accessible for all learners (Cope & Kalantzis, 2000; Edyburn, 2010; Saavedra & Opfer, 2012).

Berry (2010) studied teachers' attitudes toward inclusion and came up with profiles for three groups of teachers: a) keen, but anxious, beginners (mostly inexperienced teachers with positive attitudes); b) positive doers (more experienced teachers whose struggles with the challenges of inclusion had not deterred their positive attitudes); and c) resisters (mostly experienced teachers whose concerns about fairness signified their resistance to inclusion). In terms of Berry's research, the participants in our study were either "keen, but anxious, beginners" or "positive doers." In the words of the participants:

- I would like to see examples of UDL lesson plans and formats for how to set it up in a classroom.
- I enjoy hearing of activities lesson ideas that other teachers have tried and experienced success with because I am always looking for new ideas.
- I only heard about UDL less than a year ago. I had a hard time implementing it last school year.
- I have just started using a UDL approach in the classroom, and need some more in-class experience.
- For me UDL is very important. I have students who are very artistic and flourish when given an opportunity to draw their learning.
- I use UDL daily.

Many participants were also very keen on integrating UDL in their everyday practices as a way of supporting all learners and transforming the "I can't" into the "I can," as one of the participants described it. One of the current teacher graduates recognized that "new approaches to teaching and learning are always tricky for 'seasoned' teachers," but, as she stated later, she "welcomed it."

In spite of the very positive attitude of all the participants towards UDL, one of the major threads in the interviews was a need of generating a "mind shift" that challenges the "typical" view of teaching and learning and what is considered a "normal learner" in their educational communities. Participants felt that it was impossible to create innovative, inclusive, and sustainable educational pathways without the support of colleagues, administration, and parents. In the words of the participants:

- It would certainly take time and understanding on the part of the Department of Education, the school board, the administration of the school and teachers to make UDL a success but it is attainable.
- I love the principles but feel it should be discussed more at school by the staff and administrators.
- I would love for the administration, school council and the school community to be educated in UDL.
- … so much curriculum and lack of support from school/district makes it very difficult to implement UDL in my classroom.
- Personnel at school level may not be available to meet the needs of children in big classes. It is very hard when support isn't available.
- Parents have to be on board with both understanding and supporting this model.
- There needs to be a school wide collaboration. Not everyone is willing to try new things.

Barriers to Implementing the UDL Pedagogical Approach

Rose, Meyer, and Hitchcock (2005) presented the UDL pedagogical framework as an all-encompassing guideline for effective, inclusive practice leading to a resourceful, strategic, and knowledgeable generation of students. There is no doubt that teachers face a wide range of challenges to student success in the classroom (Rose & Dalton, 2009). Teachers need to find a vehicle for reaching every student with a mixture of content knowledge and opportunities for self-development of skills compatible with the incredibly wide range of societal expectations (Rappolt-Schlichtmann, 2013). This leads to the question of whether teachers feel prepared for existing challenges and ready to adopt new approaches to teaching.

The participants in our study viewed the UDL framework and guidelines in a positive manner. Most of the participants spoke of how they had already implement UDL principles in their practice, while the remaining few spoke of their goals to implement UDL in the future. These participants thought that UDL guidelines were a great tool for self-evaluating their own practice and finding new ways of becoming inclusive practitioners. Davies, Schelly, and Spooner (2013) suggest UDL is best implemented in the planning stages of a course or unit, as it could effectively be used as a checklist for whether the course or unit would be accessible. In spite of these benefits, many participants reported being intimidated by the investment of time that implementing UDL strategies is perceived to take. For instance:

- I do not know where to start and how to effectively make the switch without exhausting myself in doing so.
- I believe the UDL framework is initially time consuming to set up.
- Being a new teacher and being at different grade levels each year it would be overwhelming to learn the curriculum and then plan lessons to meet UDL guidelines.

Some participants felt that UDL was not practical in their current classroom settings, as they were busy enough managing behaviour and covering numerous curriculum outcomes and had no time to implement new strategies. Katz (2012) commented that teachers generally accept the principles of UDL as good practices, but find it difficult to transfer all of the principles to their practice. As some participants shared:

- I believe there is an extreme disconnect between this framework and what I am expected to do in my classroom. My school wants all teachers at each grade level to use the same resources and assessments. Furthermore, we are very focused on data analysis and comparing score results across classrooms as well as comparing grade level scores to other schools. I think that UDL is an approach that could benefit *all* my students but I feel very restricted in what I can do.
- My biggest challenge is standardized testing at the end of the year.
- The difficulty arises when the parents, school board and administration operate in a different mindset … one that encourages standardized tests and report cards that are more quantitative than anecdotal.
- Curriculum is too heavy—not enough time to complete all that is required.
- When teachers use the UDL approach, they are attempting to identify and meet the needs of all students; however, they are all reported and assessed using A, B, C, and D. This needs to change.

As stated by Edyburn (2010), the majority of educational professionals do not possess a substantial knowledge of UDL. The presence of UDL literature and resources has not necessarily been fully realized in practice (Rappolt-Schlichtmann & Daley, 2013). Many teachers are aware of the theoretical basis and value of UDL, but not of the process of application that would benefit their

students. New teachers may assess the cost/benefit ratio and decide that inclusive practice is too much of a challenge, despite its impressive benefits (Rose & Dalton, 2009). A few of the participants in our study did not feel confident to implement the UDL framework, despite being highly enthusiastic about the prospect, and believed that they were not adequately prepared or lacked necessary resources. In fact, lack of resources and technology was the most commonly reported challenge by the participants:

- I would love to learn much more about UDL… I feel it is such a vast area to explore that I've only touched the surface.
- UDL needs to be taught to teachers instead of saying, "Here it is, figure it out."
- I would like to learn from other, experienced teachers who use UDL of how they are doing it, what challenges and success they are having.
- Lack of resources in my school would make it difficult to implement UDL effectively.

Though other research has suggested that knowledge of UDL might be lacking (Edyburn, 2010), this study is supported with other research (Ainscow & Miles, 2008; Evans & Williams, 2010; Florian & Black-Hawkins, 2011; Florian, Young, & Rouse, 2010; Saab, van Joolingen, & van Hout-Wolters, 2012; Sharma, Forlin, & Loreman, 2008) that suggests that it is knowledge of the practical application that is missing and requires professional development sessions.

Advantages of Using UDL for Providing Multiple Means of Instruction

The participants' views of UDL, similarly to the literature (Ainscow & Miles, 2008; Florian & Black-Hawkins, 2011), revolved around the creation of a safe learning space, where equitable, rich learning opportunities are available for students to learn to the best of their ability. The majority of participants reported using a variety of UDL strategies in their teaching practice, such as differentiating instruction and choice boards, as well as multiple opportunities for student choice, such as selecting the modality of assignment submissions. The strategies are in response to identified barriers to student

learning and are in the form of alternative options that accommodate student learning diversity and support the cognitive development process in domains such as perception, action, expression, and engagement (Glass et al., 2013). Implementing the recommendations of the CAST guidelines in conventional teaching practice can ensure that classrooms cultivate resourceful, expressive students with the determination and access to learn the skills necessary in the 21st century (Clark & Button, 2011; Gee, 2009; Kress, 2000). The majority of participants also reported that when they implemented UDL principles into their planning, they felt that students were more engaged in class. In the words of the participants:

- Students' needs are so diverse and UDL is an approach that addresses students' needs as individuals, building on their unique strength.
- UDL approach can make the teacher's job easier and create a safe comfortable learning environment for students' frustration levels go down and success rates go up.
- UDL creates an environment of engagement and opportunities for individual creativity.
- It allows for greater student success which in turn leads to a more positive environment when students feel confident and capable.

Valuing all of the past learning of students and ensuring that all types of learners have a place to learn equitably was unanimously agreed upon by all those interviewed.

A recurring theme in the responses of participants was having students take more operational control over their learning. Gee (2009) indicates that students who take a more active role in their education have greater resilience and experience higher achievement than those who are led from task to task. Emphasis on the learner taking responsibility for their own learning is exactly what students will need in order to be self-starters in society:

- Students have choice—increases engagement. Students are supported based on their strength which improves achievement.
- UDL encourages risk taking and creates student focused environment which promotes student ownership of their learning.
- As a teacher but also as a parent of a struggling reader and writer, I believe that UDL can certainly help with building confidence and self-esteem in students by using their strengths and background knowledge to express their point. . . .
- All students can do the same tasks, meet the same outcomes, differently, and in a way that is meaningful to them.

A major thread in the interviews across all participant strategies was an emphasis on availability of up-to-date resources and technology. In the past, using assistive technology in the classroom meant having cumbersome devices which were expensive and required specialized training for both student and teacher to use. All too often children found these devices stigmatizing and inflexible. The electronics children casually carry about today have the potential to replace many of the assistive technology solutions of the past in a non-stigmatizing way. King-Sears (2009) notes that there needs to be more information about the role of technology and using UDL (p. 201), for as Edyburn (2010) also says, "UDL is more than simply integrating the latest technology tools in the curriculum" (p. 36). As participants stated, when technology is combined with universal design for learning (UDL) principles, smartphones, iPods and tablets can transform the classroom of today, making it a more comfortable and inclusive place for all:

- Implementing the UDL framework and technology into your classroom is a wonderful way of reaching all of your learners. Today's classrooms have such a

variety of students, strengths, needs, and backgrounds … UDL framework can minimize segregation in the classroom.

- It allows individuals to show what they know in different ways. We have seen the advantages of how iPads connect with UDL, allowing individuals with different needs to be engaged in the same activities as their peers.
- Giving students multiple means to show what they know and fostering the talents and abilities of all students.

Current teacher graduates, as indicated by the questionnaire and interview results, are motivated to implement UDL strategies in their practice. The concepts underlying a UDL framework appeal to educators looking to create meaningfully inclusive classrooms. They recognize the importance of considering accessibility not only in the physical classroom space but also in curricula, teaching strategies, and assessment (Burgstahler, 2009). Drawing on research that indicates children learn via three neural networks—recognition, strategic, and affective—UDL co-founders Rose and Meyer (2002) advocated the integration of technology into instructional practices to make curricula more accessible to a variety of learners. One of the technology integration enthusiasts shared her experience:

> Many teachers are nervous about integrating technology in their classrooms. They are concerned about their ability to stay ahead of the students in the digital skills. I recognize that this can be an uncomfortable feeling for us as teachers. The benefits, however, are real and they can be life changing. I have seen "non-writers" share their stories with the class. I have been overwhelmed listening to "non-readers" recommending grade level books to their peers with enthusiasm. Would all this have been possible without the iPad? Without the structure and choices UDL provides? Maybe … but I doubt it.

Concluding Thoughts

Rose (2002, 2006) suggests that inclusive learning environments and accessible curricula are achievable and most successful when the principles and guidelines are addressed and embedded early in the design process, and when institutional supports exist. The UDL framework can help educators move to accessibility for all learners, and can maximize the educational benefits inherent in a diverse classroom community. Rose, Meyer, and Hitchcock (2005) note, however, that increased workloads, shifting teacher responsibilities and roles, insufficient time and training, and a lack of personal resources pose significant barriers to effective UDL development and implementation.

The findings of this study demonstrate the many benefits of implementing the UDL framework into curriculum designs, but they also acknowledge the need for current teacher graduates to receive professional development sessions as well as time to plan and collaborate with other teachers. Teacher education programs also need to begin to introduce pre-service teachers to the UDL framework in their courses and to model a UDL approach to the learning environment if teacher graduates are going to be able to implement UDL in their own classrooms. In turn, school systems need to integrate the UDL framework into all aspects of the learning environment, including curriculum guidelines, as well as formal and informal assessments. Most importantly, current teacher graduates entering the school system need to be given support, time, and the required resources, if they are to successfully implement UDL in their classroom.

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Chapter 16: Teaching and Learning with Technology in Participatory Digital Cultures: A Review of Policy and Practice in Alberta and Manitoba

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Abstract

Engaged teachers who design meaningful and authentic, discipline-rich learning experiences with contemporary learning technologies are the cornerstone of a 21st-century education. Policy, standards, programs of study, and teacher education in two Western Canadian provinces are reviewed to determine how each defines the knowledge, skills, and attitudes that teachers need in order to address the learning needs of contemporary and diverse K–12 students. Four exemplars illustrate the challenges and opportunities for teachers and learners to create the type of technology enabled learning environments called for in the 21st century. The alignment between teacher certification requirements and technology integration in two teacher preparation programs, one in Manitoba and one in Alberta, is examined to explore whether and how these are congruent with expectations for teaching and learning with technology. Several recommendations are made for policy, practice, and accountability in initial teacher preparation, as well as for ongoing research and practice in teaching and learning with technology.

Teaching and Learning with Technology in Participatory Digital Cultures: A Review of Policy and Practice in Alberta and Manitoba

Every Canadian child deserves opportunities at school to learn, design, and lead in inquiry-rich, technology-enabled learning environments that have been designed by engaged teachers who sponsor intellectual engagement and foster ethical and entrepreneurial citizenship for a connected world. New and experienced teachers alike are called upon to design academically and intellectually engaging learning experiences that are rigorous and complex, ones that motivate learners to explore ideas and develop explanations and solutions, and that prepare them to embrace complex social, economic, political and cultural contexts that are in constant flux (Jacobsen & Friesen, 2011). Canadian research outlines the shift in thinking called for when technology comes to school (Clifford, Friesen, & Lock, 2004):

> The magnitude of the change in teacher thinking required for effective technology integration is enormous. The shift from industrial age practices of knowledge transmission to more constructivist understandings of the ways in which learners build understanding through active engagement with ideas, materials and one another is paradigmatic in scope, calling into question many of the most familiar routines and practices of teacher-centered classrooms. (p. 90)

Given how learning expectations and the technological competencies required for students to fully participate in a connected 21st-century world have changed over time (Jacobsen, Lock, & Friesen, 2013; Jacobsen & Friesen, 2011; Jacobsen, 2010), policymakers and educators need to ask, Do current teacher certification requirements and available professional learning opportunities for teachers adequately reflect these new expectations for quality teaching and learning in contemporary classrooms? To achieve what Plair (2008) calls techno-pedagogical fluency, today's educators need to understand the uses and capabilities of learning technologies, to know the learning benefits of these technologies to then

be able to determine when and how to best use these resources to achieve the desired learning outcomes. Do our new teacher graduates and experienced practicing teachers demonstrate the techno-pedagogical fluency to meet the needs of an increasingly diverse, technologically immersed K–12 student population?

In this chapter, we examine provincial policy documents and programs of study in two Canadian provinces to identify how each province defines the knowledge, skills, and attitudes that teachers need in order to address the learning needs of contemporary K–12 students. We aim to understand how and whether policy and curriculum expectations for learning and teaching with technology align with contemporary research on the types of instructional designs that meet the needs of today's diverse learners. Second, we draw upon the literature and our own teaching and learning practices for exemplars to illustrate the challenges and opportunities for teachers who aim to design the type of learning environments called for in the 21st century. Third, we examine the alignment between teacher certification requirements and technology integration in two teacher preparation programs, one in Manitoba and one in Alberta, to explore whether and how these appear to align with expectations for teaching and learning with technology. Finally, as an outcome of this review of what teachers need to know and be able to do for meaningful learning with technology to happen in schools, we make recommendations for policy and practice in initial teacher preparation, as well as for ongoing research on learning with technology more broadly.

Provincial Vision and Policy: Alberta and Manitoba

The following question frames the review this first section: What is the provincial vision, policy, and practice related to teaching and learning with technology? Contemporary research on learning reflects a shift from industrial teaching practices focused on information delivery and acquisition to

teacher design and engaged teaching approaches that sponsor inquiry and knowledge-building for greater student engagement in a participatory, digital world (Bransford, Brown, & Cocking, 2000; Sawyer, 2006; Jacobsen, Lock and Friesen, 2013; Jacobsen & Friesen, 2011; Jacobsen & Lock, 2004). The challenge for teachers and school leaders is to move away from teacher-centered, information-delivery approaches to instruction towards the design of curriculum, teaching, and leadership approaches that enable students and teachers to work collaboratively and constructively in networked environments to build knowledge and ideas through inquiry and to connect with other learners and experts in global communities. At the provincial level, the vision for education and policies will guide innovations in practice in schools. In the next two sections, the vision and policy for teaching and learning with technology in both Alberta and Manitoba is reviewed.

Alberta Policy and Vision

Two recent vision and policy initiatives in Alberta highlight the drive towards inquiry and knowledge creation with technology: 1) Inspiring Education (Alberta Education, 2014) and 2) the Learning and Technology Policy Framework (Alberta Education, 2013). First, in Alberta, every educator is expected to design learning experiences and contexts that align with the three pillars of Inspiring Education (Alberta Education, 2014), a provincial vision statement that articulates a changed K–12 education system to sponsor the following qualities and abilities in youth:

1. *Engaged thinking.* Classrooms and schools are to provide learning environments that engage learners to think critically and make discoveries, to use technology to learn, innovate, communicate, and discover, to work with multiple perspectives and disciplines to identify problems and find the best solutions, and to communicate ideas to others.

2. *Ethical citizenship.* The emphasis is on cultivating learners who build relationships based on humility, fairness, and open-mindedness; learners who demonstrate respect, empathy, and compassion, and through teamwork,

collaboration, and communication, learners who can and will contribute fully to the community and the world.

3. *Entrepreneurial spirit*. Teachers are to provide learning environments to support learners in creating opportunities and achieving goals through hard work, perseverance, and discipline; to support learners who strive for excellence and earn success, explore ideas, and challenge the status quo, who are competitive, adaptable, and resilient.

Alberta Education's (2014) Inspiring Education is a bold vision that is explicitly tied to intellectually engaging learners in a participatory digital culture.

Second, Alberta Education's (2013) Learning and Technology Policy Framework (LTPF) was designed to enact Alberta Education's (2014) Inspiring Education, and specifically to support the creation and sharing of knowledge as critical to achieving the vision of supporting students to become engaged thinkers and ethical citizens with an entrepreneurial spirit. When technology first came to school, many teachers thought it was their role to teach computer programming and word processing; some teachers used technology to present information and to communicate with students and parents. The LTPF describes the need to move towards classrooms in which students, themselves, are using a variety of networked technologies to support active learning and knowledge building within and beyond the school. The LTPF emphasizes the shift from teachers teaching to putting the student at the centre of decision-making, critical thinking, and using technology to learn, innovate, communicate, and discover ideas. While some teachers have made great strides in adopting a student-centred approach to designing inquiry projects and problem-based learning opportunities that leverage technology, there are many other teachers who will require assistance in making the shift towards these approaches to learning with technology. Research continues to show that most instructional time in high schools comprises seatwork and whole-class instruction led by the teacher rather than inquiry approaches in technology-enabled learning environments (Jacobsen & Friesen, 2011; Daniels, Jacobsen, Varnhagen, & Friesen, 2013).

Alberta Education offers a comprehensive suite of resources to accompany the information and communication technology (ICT) program of study (2000–2003), including illustrative examples of classroom projects and practices in elementary, middle, and high schools, and resources and materials to support teacher professional learning. Alberta Education has a School Technology Advisory Committee (STAC), comprised of senior educational technology leaders from jurisdictions across Alberta, faculty from several teacher education programs in universities in Alberta, representatives from the Alberta Teachers Association, and senior leaders from within Alberta Education, to provide leadership and direction on learning with technology across the province. STAC led the development of the LTPF (Alberta Education, 2013). Further, the Galileo Educational Network (www.galileo.org) has created extensive support materials and exemplars to accompany the LTPF, and it also provides support and continuous professional learning for classroom teachers, school leaders, and leaders in school jurisdictions whose duty it is to implement the technology outcomes.

The vision and learning goals of Alberta Education's ICT program of study provide a broad curriculum perspective focused on inquiry across the disciplines, on the nature of technology, on how to use and apply a variety of technologies, and on the impact of technology on self and society. The Alberta ICT program of studies, launched province wide in 1998, emphasizes technology as a "way of doing things," with outcomes that focus on the processes, technologies, and techniques that alter human activity. As a curriculum, the ICT program of studies specifies what students from kindergarten to Grade 12 are expected to know, be able to do, and be like with respect to technology, which also gives clear guidance on what teachers need to know and be able to do. Given that technology is best learned within the context of activities, inquiry projects, and problems that replicate real-life situations, Alberta Education's ICT program of studies is meant to be integrated across all programs of study rather than serve as a curriculum in technology.

With regards to teacher certification, Alberta Education has drafted significant, and promising, changes to the present teaching quality standard that are in alignment with Inspiring Education (Alberta Education, 2014). Ministerial Order #016/97, the 1997 standard, was almost silent with regards to standards for teachers to make meaningful use of technology: namely, "teachers are expected to demonstrate consistently that they understand the functions of traditional and electronic teaching/learning technologies; know how to use and how to engage students in using these technologies to present and deliver content, communicate effectively with others, find and secure information, research, word process, manage information, and keep records" (Alberta Education,1997). However, within the comprehensive proposed framework of competencies and indicators in 2016, the teaching quality standards emphasize both teaching and leadership of learning with technology.

Within the draft teaching quality standards currently under review, for example, there is a more comprehensive focus on professional learning and the meaningful use of learning technology; standards indicate that a teacher commits to career-long professional learning and continuous improvement of teaching and learning, in part by maintaining awareness of emerging technologies to enhance knowledge and inform practice. Second, teachers are expected to apply a current and comprehensive repertoire of teaching and learning strategies to meet the learning needs of every student, by planning and designing learning activities that incorporate digital technology and resources, as appropriate, to build student capacity for i) acquiring, applying, and creating new knowledge; ii) communicating and collaborating with others; iii) engaging in inquiry and critical-thinking; and iv) accessing, interpreting, and evaluating information from diverse sources. Third, with regards to establishing inclusive learning environments, a teacher is expected to establish, promote, and sustain inclusive learning environments where diversity is embraced and every K–12 student feels welcome, safe, cared for, and respected, by recognizing and

responding to students' learning needs with supports, including assistive technologies, where required, to enable and improve learning.

Alberta Education has also proposed an expanded set of school leader standards, with specific mention of technology with regards to leading a learning community, providing instructional leadership, and managing school operations and resources. The specific school leader standards include creating an environment for the safe and ethical use of technology, facilitating technology use to support learning for all students, and facilitating access to appropriate technology and digital learning environments.

The Alberta Education policy initiatives to do with technology across the curriculum and technology in the teacher and school leader quality standards are accompanied by provincially sponsored research and investments in professional development initiatives that are designed to support school leaders and classroom teachers in making the shifts in practice needed when technology comes to school. For example, the long-term Alberta Initiative for School Improvement was a driving force in educational change in Alberta for more than a decade, and brought university researchers and school practitioners together to study and to lead curriculum and practice changes in schools and school jurisdictions.

Through the School Technology Branch, Alberta Education invests resources in school-jurisdiction and school-based research that brings university researchers and teacher educators together with educators and leaders in school jurisdictions and schools to examine and implement learning with technology initiatives that impact student and teacher learning (e.g., Daniels, Friesen, Jacobsen & Varnhagen, 2012; Alberta Education, 2015). Recently, Alberta Education carried out a baseline technology assessment across all public, separate, and francophone school jurisdictions with an 84% participation rate (Alberta Education, 2015). In the extensive baseline technology assessment, current data is provided to inform government and school authorities in making informed decisions that support

Learning and Technology Policy Framework's vision of using technology to support student-centred learning (Alberta Education, 2013). Finally, external research indicates that, while Alberta has a very good installed base of computers and network access across the province, there is still room for improvement: for example, 3 of 10 junior high school teachers teach in classrooms where the shortage of computers hinders instruction, and 25% teach in classrooms where lack of internet access limits quality instruction (OECD, 2014).

Manitoba Policy and Vision

Several policy and curriculum initiatives in Manitoba demonstrate clearly what teachers are expected to know and be able to do in their classrooms to meet the needs of diverse learners in a digital age. Digital literacy is defined by Manitoba Education as teachers "choosing and using ICT, responsibly and ethically, to support critical and creative thinking about information and about communication" (Manitoba Education, 2006, p. 8). In 2006, Manitoba Education published and mandated a vision for technology education, known as *Literacy With ICT Across the Curriculum—A Model for 21st Century Learning From K–12*. This model was revised in 2010 to include all K–12 curriculums in Manitoba. The mission is for every student to "think critically and creatively, about information and about communication, as citizens of the global community, while using ICT responsibly and ethically" (Manitoba Education, 2006, p. 8). In direct alignment with Alberta Education's ICT program of studies, Manitoba Education's Literacy with ICT K–12 continuum is designed to be congruent with and infused with existing concepts across the curriculum and emphasizes that ICT is not a separate curriculum in K–12.

The Literacy with ICT K–12 continuum is described as a developmental learning continuum which is an assessment tool for learning based on teacher observations on "how students develop their

critical and creative thinking, in curricular context, and through the responsible and ethical use of ICT" (Manitoba Education, 2006, p. 9). The creation of the continuum was informed by Bloom's (1956) cognitive taxonomy and Krathwohl's (Krathwohl, Bloom, & Masia, 1956) affective taxonomy, inquiry-based pedagogy, and Pearson and Gallagher's (1983) model of explicit instruction.

Figure 1. Manitoba Education. (2006). *Literacy With ICT Across the Curriculum: A Model for 21st Century Learning From K-12*. Retrieved November 20, 2015 from http://www.edu.gov.mb.ca/k12/tech/lict/overview/index.html. Reprinted with permission.

Simultaneously, while Manitoba's Literacy with ICT K–8 continuum was being developed, there was a team developing the ICT framework, which included fifteen half-credit technology courses for senior years, Grades 9 to 11. These courses were introduced to Manitoba high schools as option courses. A draft of a new continuum K–12 was created in 2010 (Manitoba Education, 2006).

However well designed and research informed, the provincial policy and ICT curriculum calling for the meaningful use of technology in teaching and learning is not enough. After the 3-year period of the initial ICT rollout, the funding for implementation ended and Manitoba Education deemed that the mission was accomplished: namely, the curriculum was implemented. However, at the first meeting of the Literacy with ICT K–12 continuum action research project, the history and status that was provided demonstrated that the continuum was not implemented throughout the education system. Given that the provincial policy on Literacy with ICT K–8 was not mandated and teachers were not required to infuse learning technologies into their teaching practices, the results were predictable. Coherence in the use of

technology in the classroom was still varied, and barriers and challenges to this implementation plan still existed. The work continued with a refresh of the continuum, and a new standardized provincial report card was implemented in 2013. Surprisingly, in the new provincial report card, there is no longer a requirement for teachers to report on student learning with ICT, even though the continuum (Manitoba Education, 2006) still states "all schools will report to parents about the development of their child's literacy with ICT" (p. 10). The continuum is undergoing a review in 2015/2016 in an action research project to see if progress has been made in the implementation process and to assess what teachers need to help them infuse the ICT continuum into their teaching practice. The approach to policy implementation in Manitoba appears to be focused on hope rather than leadership and accountability, and the expectation that teachers will somehow determine that ICT is important, and that teachers will somehow develop the requisite knowledge, skills, and attitudes to infuse literacy with ICT into their teaching practice. At present, while there is sound policy and curriculum, there is still no mandate or continued professional development plans or initiatives in Manitoba to support teachers with integrating learning technologies into their teaching practice.

The focus in Manitoba's Literacy with ICT continuum is not on technology but on critical thinking and how students acquire and use digital literacies in their learning. The *NMC Horizon Report* indicates that digital literacy is a requirement of a 21st-century education (Johnson, Adams Becker, Estrada & Freeman, 2015). Manitoba's policy and vision to infuse technology into the curriculum aligns with the definition and needs of a 21st-century education. The gap, however, that still exists with the Literacy with ICT policy is that it is not enacted consistently for all students in Manitoba, because teachers are not required to implement ICT into their teaching practice. The gap continues as teacher education programs in Manitoba are also not required to infuse the Literacy with ICT K–12 Continuum into the preparation of pre-service teachers.

Manitoba Education developed the Education Agenda for Student Success K–12 (Manitoba Education, 2015) in 2002–2006, an evolving, shared plan of action developed by collaborating with educational communities across the province. The Agenda includes a set of six priorities for public education in Manitoba: (1) improving outcomes especially for less successful learners; (2) strengthening links among schools, families, and communities; (3) strengthening school planning and reporting; (4) improving professional learning opportunities for educators; (5) strengthening pathways among secondary schools, post-secondary education and work; and (6) linking policy and practice to research evidence. Manitoba Education has a clear vision to "ensure that all Manitoba's children and youth have access to an array of educational opportunities such that every learner experiences success through relevant, engaging, and high quality education that prepares them for lifelong learning and citizenship in a democratic, socially just and sustainable society" (Manitoba Education, 2015).

Both Alberta Education's ICT program of studies and Manitoba's Literacy with ICT K–12 continuum are about meaningful and engaged learning with technology; both of the provincial programs of study focus on the knowledge building, problem solving, critical and creative thinking skills, ethics and responsibility, digital literacy, and ICT fluency that contemporary students are expected to develop. Both of the provincial programs of study align well with the International Society for Technology in Education's (ISTE, 2007) international standards for teacher and student learning with technology, as well as the vision outlined in the *NMC Horizon Report* (Johnson et al., 2015) that says that digital literacy is a requirement of a 21st century education. Therefore, it is safe to conclude that high-level provincial policy and planning for practice that reflects the international standards provided by ISTE (2007) has been well accomplished in both Alberta and Manitoba. The gap that needs to be addressed is what many would agree is the more challenging, which is widespread implementation of the policy and

curriculum standards, accompanied by quality assurance and accountability, meaningful professional development, and teacher education.

Access to computers is relatively high and similar in Alberta and Manitoba compared to other provinces; Alberta ranks second, and Manitoba ranks third highest in Canada ("Interactive Charts," 2015). While there is some research on the use of technology for information delivery in Alberta high schools (Daniels, Friesen, Jacobsen & Varnhagen, 2012), it is presently unclear where technology is and is not being used appropriately and in meaningful ways by students and teachers to create knowledge across Alberta and Manitoba. Educational researchers argue that there must be purpose to using technology for teaching and learning: "We must be prepared to rethink current dominant approaches and be clear as to what type of learning experiences we wish to design" (Garrison, 2011, p. 1). Rather than simply camouflaging passive lessons by adding on technology, teachers need to focus on designs that promote deep learning and develop skills needed for the 21st century.

Both provinces have developed promising vision statements and policy frameworks for learning and teaching with technology. The proposed Alberta Education teaching quality standard and the school leader quality standards are very promising with regards to meaningful learning with technology which has implications for teacher education at universities in Alberta. However, practicing teachers in both Alberta and Manitoba have their hands full addressing the outcomes of the present curriculum. There is a range in teacher's practices from technological illiteracy to techno-pedagogical fluency (Plair, 2008). Teaching practice and capacity for designs with technology range from beginner to advanced (Daniels, Friesen, Jacobsen & Varnhagen, 2012). There is a pressing need for well-designed and continuous professional development that supports practicing teachers at all career stages and with a range of techno-pedagogical fluencies in designing the inquiry-based, technology-enabled learning experiences that their students need. Rather than simply camouflaging a passive lesson with technology as an add-

on, teachers need to focus on designs that promote deep learning and develop skills needed for the 21st century. As reviewed in a subsequent section, there is also a need for greater accountability and professional responsibility for technology integration in initial teacher education.

Living Well With Technology in the Classroom

In this second section, the following question framed our inquiry: How can teaching and learning in a participatory digital world be lived well in the classroom? Four examples of contemporary practice from Manitoba and Alberta classrooms are described to illustrate how students and teachers can learn and live well in a participatory digital culture. Examples have been drawn from the authors' own observations and experiences with practice through their roles in teacher education, graduate education and by conducting research in classrooms (Mazur, Brown & Jacobsen, 2015; Daniels et al., 2012.

Example #1—Authentic Learning

Ms. Johnston teaches Grades 1 and 2 and infuses technology into lessons using an inquiry approach to teaching. Students began using technology for learning by using Ms. Johnston's personal iPhone, because there were no other devices available for this class. Science lessons are conducted outside with students discovering leaves, trees, bugs, environment, and so on. Using the teacher's iPhone while out in the field, students took pictures of these items and specimens and posted these in real time on a class blog before they even returned to the classroom. Students did not search the Internet for stock images and the teacher did not worry about copyright details, because the students created their own pictures. Once indoors, students combined the science lesson with learning English by writing about their experience and sharing their learning with others. Over time, Ms. Johnston has acquired several more mobile devices by submitting applications to various organizations to attract funding to

purchase more devices. For example, Ms. Johnston was successful with a grant application and purchased several iPads for students to share. The Grade 1 students continued into Grade 2 with Ms. Johnston. The Grade 2 students graduated from Ms. Johnston's class to another teacher in Grade 3. The third grade teacher was not using technology for teaching or learning. However, at the beginning of the school year, the Grade 3 students from Ms. Johnston's classroom asked their new teacher if it would be possible to blog about their work! The third grade teacher approached Ms. Johnston for help to learn how to use technology so the students could contribute to blogs. Ms. Johnston has a passion for leading and learning with technology, and supports her colleagues in their professional learning in a gentle and approachable manner. Ms. Johnston's practices and passion with technology is contagious through the modeling she provides. The third grade teacher began to use technology for learning in her classroom with peer support. This example highlights the benefit of peer learning for teachers, and the need to provide intentional and readily available professional development and support for all teachers. The third grade teacher in this school decided to pursue professional learning with a colleague; many teachers do not or cannot approach a more knowledgeable peer, and instead limit student learning to well-practiced, but conventional approaches to instruction.

Example #2—Professional Learning

Ms. Brown was told in the spring that she would have access to five iPads for her class of 20 students in the fall. She was a bit nervous because she had not used technology for teaching yet. Ms. Brown believed her technology skills were almost non-existent given that she struggled with basics like e-mail. However, Ms. Brown sought out resources for using iPads within the Grade 1 program of study. She invested a great deal of time studying how to infuse technology into her teaching and spent a good portion of her summer practicing with various applications and technological resources as part of her

ongoing commitment to professional learning. Ms. Brown took the initiative on her own to invest time in professional learning without visible support from her school or school jurisdiction. Near the end of the summer, she received an e-mail from her administrator stating that the iPads would no longer be available. Ms. Brown chose to respond to the e-mail indicating all of the preparation that she had undertaken and advocated that she still be given the iPads for her grade one class as promised. Fortunately, it turned out that the school jurisdiction was able to make available five iPads for Ms. Brown's Grade 1 class, and she was able to start using her learning designs with the students that year. This story illustrates at least three issues: (1) the limited access to necessary mobile technology faced by many classroom teachers in some school jurisdictions; (2) the often-mysterious approach to decision making used by some schools for deploying technological resources for teachers and learners across all grades; and (3) the gap between teachers need for high-quality, ready access to professional learning opportunities to do with teaching and learning with technology and the reality that many have to take on this learning experience on their own during summers, after school, and on weekends.

Ms. Brown, the Grade 1 teacher in this example, carried out her inquiry-based lessons using the iPads. Students were divided into groups of four; each group was given an iPad and guided with criteria based on the curriculum, using discovery approaches. Student groups were then asked to use the Smart Board to share their learning so that everyone in the class could share and learn with these discoveries. Students were asked to provide critiques and suggest other ideas based on the group presentations! Grade 1 students were highly engaged and developing competencies such as knowledge building, creativity, critical thinking, problem solving, and collaboration applied to authentic situations. Ms. Brown reported that the students far surpassed her curriculum and learning outcome expectations in half the time that she usually spent in teaching these learning outcomes without technology and using conventional, teacher-centered approaches. However, partway through the school year, Ms. Brown

received notification that the iPads would be taken from this class and given to another teacher. Students would not have access to technology any longer. Again, where was the planning and the vision in this scenario? What about the other teacher—did that teacher have time to prepare how to use the technology and to design meaningful and robust learning experiences? The disconnect between school policy for technology distribution and the learning experiences created for these students by the teacher is huge and the teaching and learning is inconsistent, given the uneven leadership and lack of access to meaningful professional learning. "Learning how to teach effectively with technology both enables and requires some fundamental changes to schooling" (Galileo Educational Network, 2014). This example illustrates the type of positive changes a teacher can achieve with impressive learning outcomes results for students when effective planning of technology infusion and inquiry-based learning takes place. The Galileo Educational Network (2014) states that these results include improved achievement, higher test scores, improved student attitude, enthusiasm and engagement, richer classroom content, and improved student retention and job placement rates.

Example #3—Collaborative Learning

Mr. Stockton is a kindergarten teacher and Ms. Martin is a Grade 2 teacher, and both teach in rural areas in neighbouring school divisions. The two teachers have a deep passion for teaching and learning, and connect their students in projects that involve collaboration to create new knowledge. Mr. Stockton has experienced teacher education that included a professor who had a passion for leading and learning, and who presented innovative ideas that provided pre-service teachers with opportunities to design learning using inquiry-based pedagogy, infusing technology. Mr. Stockton now looks for opportunities to provide his students with technology-infused and inquiry-based learning. Mr. Stockton and Ms. Martin involved their students in an inquiry-based Microsoft Innovative Teacher Project that

won second place in the world at the Microsoft Partners in Learning (PiL) Global Forum. These teachers demonstrate excellence by providing innovative learning opportunities and expert connections for their students. When asked about consistency in learning for their students as they moved into subsequent grades, the two teachers' were sad to relate that this group of students would likely not have the same rich opportunities in future classes, because most of their teaching colleagues did not use technology or inquiry-based pedagogy, nor did some teachers even have a passion for leading and learning. This example illustrates that ready access to professional development is needed, so that all teachers, regardless of their teacher education background, can learn to design and teach with technology. Further, this example illustrates the role that teacher education plays in preparing new teachers with skills to teach for the 21st century. The *NMC Horizon Report* (Johnson et al., 2015) states that "teacher training still does not acknowledge the fact that digital media literacy continues its rise in importance as a key skill in every discipline and profession" (p. 24). The report goes on to say that professional development and informal learning for in-service teachers is being used to address the lack of formal training with learning technologies provided in teacher education programs.

Example 4—High School Social Studies

In the article, *Hands On Vs. Hands Up: Technology Enabled Knowledge Building in High School*, Jacobsen and Friesen (2011) describe in detail the inquiry-based learning experienced in high school when knowledge building with technology was embraced by secondary students and their teacher. The topic was historical and modern engagements in war; the inquiry projects engaged students in studying over 50 historical and modern day events related to war in order to analyze, synthesize, and evaluate interrelationships, possible causes and implications; to interrogate relationships and combinations of events; and to create new knowledge and understandings related to the question, "Who

holds the winning hand in war?" Rather than lecturing students about the topic, the teacher displayed relevant and interesting online videos, interactive models, and graphical resources on an interactive whiteboard (IWB) to engage students with historical events and modern interpretations of these events. Students actively debated the connections between lives lost in past wars and casualties in the recent war in Afghanistan to better understand Canada's role in the international community. While the classroom was arranged in a typical lecture style, the teacher used clickers and open-ended questions to engage every student in the discussion and to provide immediate feedback to the class. Clicker questions prompted discussion and debate by students in their peer group. High school students were academically engaged in the technology-enhanced social studies discussion activity via the teacher's design for knowledge building that was enabled by the clicker technology. In the second part of the class, the teacher and students transitioned to the inquiry projects. The teacher displayed the project and expectations, along with relevant online sources and videos on the IWB, and also used an interactive online Prezi (i.e., a type of concept map), to present the inquiry project. The teacher shared links to online examples of student work from previous years, and reviewed expectations and standards for students using a prepared assessment rubric, also available online.

So what happens to student learning as students go from kindergarten through Grade 12 and have diverse, uneven, or no experiences learning with technology? Sometimes the learning is an engaged, innovative, technology-infused, inquiry-based learning experience (Jacobsen & Friesen, 2011), and sometimes the experience and learning is standardized, teacher-centered, and boring. Fullan (2011), in an Innovative Teaching and Learning Research report, states that "education experiences for most students are boring, imprecise, unrewarding for the effort, and biased toward low-level skills" (p. 33). Why does the joy of learning have to be dredged out of students because of this inconsistent approach to teaching and learning? The answer to this question lies in part in the teaching approaches that do not

allow students to become creative thinkers, to explore, and to play. “Unfortunately, after leaving kindergarten, children have not had the opportunity to iterate on what they learned in kindergarten, to continue to develop as creative thinkers” (Resnick, 2007, p. 5).

The focus in each of the four scenarios is on maximizing collaborative student learning in community rather than on using the technology. While some of the learning in these examples is possible without the use of technology, it is clear that learning can become deeper when teachers are techno-pedagogically fluent, and when they know when and what type of technology to use to make the learning more meaningful or even make new types of learning possible. The knowledge, skills, and attitudes demonstrated by each of these teachers in this section align with Alberta and Manitoba’s vision and policy for the meaningful integration of technology through designs for learning that focus on knowledge building, creativity, decision-making, and literacy with ICT. These principles for designs for learning include inquiry-based pedagogy, constructivist learning, developing higher-level critical and creative thinking skills, reaching for deeper understanding rather than memorization, the gradual release of responsibility, digital citizenship, and using multiple literacies for the 21st century. It is the expectation in both provinces that all classroom teachers will implement these practices into the design of learning environments and rich learning opportunities for students. “When learners are given opportunities to build knowledge, the teacher’s role changes from a conveyor of information to a designer who is intentional about the work he or she asks students to do. Teaching changes from preparing one message for a whole class to being mobile and responsive to individual and group learning needs, and to providing ongoing feedback to help all learners continually improve their work” (Jacobsen, Lock, & Friesen, 2013, para. 6).

Given the review of policy in two provinces and the review of what quality learning with technology can look like as lived well in the classroom, the question that frames the final section is,

How well is the provincial vision for technology and learning connected to how student teachers are prepared on campus to teach in contemporary classrooms?

Teacher Certification Requirements Aligned With Teacher Preparation Programs

In this section, we critically review the provincial requirements for teacher certification in Manitoba and Alberta and compare these with the programs of study for teacher education in two faculties of education, along with any supports provided to teacher candidates and cooperating teachers in field placements. We wanted to better understand the ways in which two faculties of education are responding to provincial policies and initiatives that frame requirements for student teachers to experience inquiry-rich, technology-enabled learning experiences during their initial teacher preparation.

The University of Calgary Werklund School of Education

The design and delivery of teacher education programs in Alberta are governed by memorandums of understanding between faculties of education in Alberta universities and Alberta Education, which are framed by the Alberta teaching quality standard and the Alberta programs of study. Building upon what was reviewed previously, with regards to the meaningful use of technology in learning, the current teaching quality standard in Alberta is focused on instruction and information delivery rather than more contemporary approaches to inquiry, problem solving, decision making within a participatory culture. A comprehensive review of the integration of technology in teacher education across Alberta universities is needed and goes beyond the scope of this chapter. However, a specific focus on the integration of technology in one teacher education program at the University of Calgary can provide some insights, however limited in scope, into how provincial vision and policy initiatives with regards to learning technology can be lived out in practice.

Over a decade ago, Jacobsen and Lock (2004) evaluated the integration of technology across one teacher education program, and identified some promising practices, such as a required ICT course for all student teachers, a suite of workshops and seminars on various approaches to inquiry, and community engagement for inquiry and technology-rich field placements for student teachers. There have been many program changes and a faculty restructuring since Jacobsen and Lock's (2004) review and evaluation of technology across the teacher education program. For example, in the past 5 years, the Werklund School of Education has implemented a newly designed bachelor of education program that allows for direct entry of students from high schools, as well as the first community-based BEd program in Western Canada that allows students from rural and remote locations to engage in teacher education from their home communities. Teaching faculty continue to focus attention and action with regards to integrating technology across courses and experiences for student teacher education on campus and in field settings in Werklund School of Education. Building and extending upon an extensive plan for integrating technology across the bachelor of education program in ways that reflect the Alberta Education ICT program of studies, both the teaching faculty and student teachers experience technology as a way of communicating, collaborating, and expressing their understanding across all of their required courses rather than having a single specific course focused on learning technologies. So, at a minimum, every student teacher is engaged in a mixture of blended-learning experiences using a learning-management system (e.g., Desire2Learn), distributed communication spaces (i.e., Google hangouts, Adobe Connect), and the creation and use of digital resources. Every student teacher has the opportunity and is encouraged to leverage media and technology to express and represent their understanding across their courses, through forms such as digital movies and podcasts, blogging, micro blogging and websites, graphic design of digital and physical posters, and visuals and animations for presentations.

Every student completes a STEM course in which one assignment is to complete a module on robotics and designs for learning using robotics in the classroom.

Based on a comprehensive curriculum review of the bachelor of education program in 2013–2014, led by the associate dean of teaching and learning (University of Calgary, 2014), several action statements have been drafted to guide ongoing continual improvements in program coherence, academic staff development, collaborative development of curriculum and assessments, including the implementation of technology for learning and teaching, across the teacher education program. The curriculum review report identified specific actions to be taken with learning technology to foster a broader understanding of technology integration in practice, to provide support for technology integration, to provide workshops through the instructor course team meetings and planning days (such as the orientation in September), to provide focused workshops on identified areas of need such as creating criteria to assess digital products. As part of the overall assessment strategy, one required action is to further enhance the development of the digital portfolio to be used across the program that will include evidence of student learning progress through examples of work and reflection. It appears that the teacher education program in Werklund School of Education already has a strong foundation for teaching and learning with technology, and a clear plan for continued expansion of the integration of digital technologies across the curriculum and for assessment.

The University of Manitoba Faculty of Education

Teacher education programs in Manitoba are governed by Manitoba Education, formerly known as Advanced Education and Training. A group formerly known as TEC, consisting of Education faculty deans, government, and MTS (Manitoba Teachers' Society) played a part in the governance and approval of these programs; however, the MTS group no longer exists.

There is no provincial committee or department that directly monitors what teacher education programs are doing with curriculum, assessment, and student learning. Unlike Alberta, Manitoba certification does not specify any requirements regarding teaching and learning with technology, other than as outlined below that only pre-service teachers in secondary streams must take one prescribed course to study technology for teaching.

Manitoba has six institutions that offer teacher education programming. The University of Manitoba has the largest teacher education program of the six in the province, and according to its website (University of Manitoba, 2016) its teacher education program provides the following opportunities:

- Increased emphasis on teaching to diversity
- Courses better informed by Aboriginal perspectives
- More integration of classroom technology
- Broader preparation for the K-12 experience
- More variety in practicum experiences

Students in the secondary stream in the Faculty of Education after-degree program at the University of Manitoba are required to take one prescribed course to learn how to use technology for teaching. Primary and middle-years streams do not require this technology course, and it is even difficult to fit such a course into the schedule for these students. It is expected that professors in these streams infuse technology into all of their teaching and learning.

Zhang (2014) conducted a study in Ontario to explore the teaching of technology to pre-service teachers in a teacher education methods course. He noted that these pre-service teachers entered their program with varied ICT skills, but, regardless of their level of technology skills, they "lack the pedagogical knowledge and strategies to use ICT for teaching and learning" (p. 334). Findings from this study show that the infusion of technology into teacher education methods courses increases the

theoretical and practical knowledge of pre-service teachers to infuse technology into teaching practices and develop other skills including critical thinking, lifelong learning, and collaborative learning and workplace skills. Zhang concluded, however, that "it takes more than a course in a teacher education program for pre-service teachers to get well prepared as future teachers who can effectively integrate ICT into their course design and classroom teaching. A learning environment needs to be created program-wide so that pre-service teachers can be exposed to various kinds of ICT to develop a good mastery of technological and pedagogical knowledge and skills of ICT integration in both subject-specific areas and the curriculum level" (p. 335).

Based on literature, observation, and experience, it appears that a consistent approach across the curriculum to prepare pre-service teachers to infuse the Literacy with ICT K–12 continuum into their teaching practice is not occurring in this teacher education program in Manitoba. There is no mandate in Manitoba for teacher education programs to teach about, or with technology, or to infuse Literacy with ICT K–12 into the campus curriculum. Some teacher educators are implementing Literacy with ICT K–12, while many others are not. The choice to implement the provincial curriculum is individual. The authors contend that if Manitoba's Literacy with ICT K-12 continuum is not infused into teacher education programming, then pre-service teachers in Manitoba will need professional development from the outset of their teaching careers to provide their students with meaningful learning with technology for the 21st century. "Many of today's pre-service teachers are the product of technologically illiterate teachers" (Plair, 2008, p. 73). Some professors in the education faculty use a theoretical approach when teaching pre-service teachers about the use of technology for teaching and learning, while others implement a theory and practical approach. These approaches are determined by individual teacher educator preferences.

In a study by Tondeur et al., (2011), the researchers pointed to several things that are required for effective preparation of pre-service teachers to develop self-efficacy in using technology in meaningful ways for teaching and learning. The research team identified several major gaps in the content and delivery methods used in teacher education programs to prepare pre-service teachers to integrate technology into their lesson designs. The team found that pre-service teachers did not have the opportunity to adequately experience the use of technology to develop proficiency and efficacy in its use. The study also found that the learning that pre-service teachers received in the teacher education courses did not align with what was needed in authentic learning environments. The researchers emphasized that teacher educators must model the use of ICT, not only to learn the application of technology and how to design learning with technology, but also to provide motivation and develop positive attitudes and perceptions for pre-service teachers to translate this learning into their classrooms. "Finding ways to bring educators' attention to the implications of digital technologies for learning and to bring those technologies into classrooms in increasingly meaningful, effective and innovative ways is one of the important tasks of teacher education" (Jacobsen, Friesen, & Clifford, 2004, p. 308).

Perhaps there is a role for a pan-Canadian approach to teacher education in Canada. At the present time, education is a provincial mandate and each province certifies or licenses teachers individually according to their provincial requirements. The Labour Mobility Agreement (LMA) allows teachers to teach in other Canadian provinces than those in which they were certified, provided they hold certificates or licences from those provinces. The LMA is not dependent on the person's education—for example, holding a bachelor of education. In this chapter, a comparison of two faculties of education suggests that new teachers in two different provinces may experience the integration of technology for teaching and learning in very different ways, and emerge ready to teach with a different set of teacher design and technology integration experiences and skill sets to draw upon for their

classroom practices. There are different vision, policy, and curriculum documents that guide the integration of technology for teaching and learning in these two Western provinces, and different ways to seek accountability. One might conclude from these differences that some teachers are more or less advantaged in their preparation and training through teacher education, and find themselves in quite different circumstances and levels of readiness upon graduation to meet the expectations of students in a participatory digital age.

Recommendations for Policy and Practice

In this chapter, we have explored how mandated learning expectations and the technological competencies required for students to fully participate in a connected world are interwoven in mandated provincial programs of study, teaching quality standards, and teacher education. We have provided examples of diverse ways in which teachers design for meaningful and authentic learning with technology in elementary and high school classrooms, along with some of the challenges and barriers they encounter when adopting technology for learning. We contend that policymakers and educators need to work with current teacher certification requirements and create professional learning opportunities to support both new and experienced teachers in meeting expectations for quality teaching and learning in 21st-century classrooms, which includes the meaningful integration of learning technologies. It is clear that in two Western Canadian provinces, the vision, policy, and practices to do with contemporary learning technologies are evolving and that expectations for knowledge building and inquiry with technology in a participatory culture are on the rise. New issues and challenges confront researchers, policymakers, and educators when inquiry and technology come to school, such as the great need for ongoing professional learning and reliable access to technological infrastructure and devices. In order for schools to provide every K–12 learner with the learning opportunities and experience called for

in policy, program, and certification mandates, every classroom teacher and school leader needs to be prepared and well supported in meeting these rising expectations, and every teacher and student needs access to the technologies required for communication, collaboration, and connectivity.

There is a gap in the implementation of policy and vision that arises when teaching practice is inconsistent from one classroom or school to another. There is a equity gap between teachers who are not accountable and choose not to infuse literacy with ICT into their teaching practice and students' who have the right to expect and to experience authentic and contemporary learning opportunities with technology at school. Some teachers choose, or choose by default, to not infuse technology into their teaching practice for many reasons, some of which likely include leadership and decision-making that presents barriers and challenges; limited or superficial professional development and collaborative design experiences to do with inquiry and technology; limited access to technology; and school and school-jurisdiction infrastructure and networks that are not robust, that are not reliable, and that do not support contemporary networking and technology use. School leaders and jurisdiction leaders need to ensure that digital technologies for learning are part of the integrated curriculum and that collaborative learning communities are a part of ongoing mentoring and professional learning so that all teachers have appropriate supports in using such technologies in meaningful, effective, and innovative ways with their students (Jacobsen, Friesen, & Clifford, 2004).

From a teacher education perspective, a challenge that continues to limit capacity building for new teachers and recent graduates is the quality and type of learning experiences that are provided in faculties of education. At the same time that practicing teachers need support in making the shifts that are called for in a participatory digital culture, our universities need to prepare new teachers to graduate with the competencies and skills needed to become teacher designers with contemporary technologies in a participatory culture. In order for new teachers to be able to meet the needs of an increasingly diverse,

technologically immersed K–12 student population, academic faculty members need to become techno-pedagogically fluent and incorporate technology-enabled learning designs across the curriculum.

Recommendations for Policy

Alberta Education has set a clear vision, developed strong policies and teaching quality standards, and designed a framework for teaching and learning with technology. Policy is becoming practice through a strong plan and accountability framework for implementation in Alberta schools, and appears to be gaining a foothold in post-secondary as evidenced by one Alberta faculty of education. In Manitoba, policies and frameworks for literacy with technology have been created and are currently being revisited and strengthened; however, these policies have not been mandated in Manitoba schools and there is no accountability or quality assurance framework currently in place. Similar to Alberta Education's goal that technology is a way of doing things and that technology is integrated across programs of study, it is the long-term vision in Manitoba that learning with technology becomes ubiquitous and will not require independent reporting. While the integration of technology across the curriculum in every classroom is a laudable goal, it does not reflect the current learning situation or opportunity for every learner in Manitoba, nor do we suggest that it is the case for every learner in Alberta either. Therefore, ongoing attention needs to be paid to mechanisms for quality assurance, accountability, and responsibility for the provincial policy and practice mandates to have any influence on teachers' practice and students' learning.

Questions need to be asked, however, with regards to professional accountability and responsibility, and the role of professional teacher associations, professional development consortia, and individual school jurisdictions in addressing the provincial policy and standards. How can it continue to be the case in Alberta and Manitoba, that in the presence of policy, in the presence of a mandated

curriculum, that school jurisdictions, school leaders and classroom teachers can choose to integrate technology for learning or not? Further, how and to what extent is their strong leadership and technological infrastructure available in each school in order to achieve the provincial policy and programs of study to do with learning technologies? It is well recognized that practicing teachers, no matter how experienced, hold a diverse range of teaching abilities and competencies in designing and supporting learning with technology. It is well recognized that there is a widespread need for continuous professional development, sound school and jurisdiction leadership, and a robust and reliable technological infrastructure in each school to support teaching and learning with technology in a digital age. It will take all of the stakeholders in the education system to work together towards achieving the goal of meaningful learning with technology for every child in every classroom.

Recommendations for Practice

Ongoing, continuous professional development with technology will continue to be a priority for teachers, school leaders, and school jurisdictions in the coming years. Investments have been made to provide teachers with professional development throughout their careers to support continuous learning, to invest in change and innovation in response to changes in curriculum and assessment, grading and reporting frameworks and to meet the demands of evolving and changing societal, economic, political and technological culture and contexts. Learning to infuse technology into teaching and learning is a major component of professional development in many school jurisdictions.

"Methods instructors need more professional development on specific technologies that may be used in their methods courses so they can model the infusion of particular technologies to a greater extent rather than merely exposing candidates to more general possibilities" (Buss, Wetzel, Foulger, & Lindsey, 2015, p. 170). It is not the time to take the foot off the gas, so to speak, with regards to current

teachers' professional learning and inquiry to do with technology integration across the curriculum. The new teachers who join the profession bring diverse experiences and skills with learning technologies and will need ongoing, continuous professional learning opportunities and supports. Ministries of education, school jurisdictions, and schools need to invest in and provide a robust and reliable technological infrastructure in every school in order for there to be a level playing field for all students, teachers, and school leaders. There is a need for ongoing support for experienced teachers who have learning needs and goals across a diverse continuum. Local and provincial research continues to be needed on the ways that practicing teachers are learning how to incorporate technology for learning across the curriculum. Local and provincial research on how schools, school districts, and professional teacher associations are addressing the need for ongoing, continuous professional learning for quality teaching in a digital world is needed.

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Chapter 17: The Capacities Teachers Need to Address Equity and Diversity

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Abstract

The limited diversity of today's teacher candidates makes it more important than ever that all teacher candidates develop the capacities to address diversity and equity. Eighteen elementary teacher candidates at the University of Toronto in 2012–2013 identified four capacities key to being able to be a "good" teacher who addresses equity and diversity: 1) student-centered practice; 2) professional development; 3) inclusive practice; and 4) establishment of a safe learning community. These four capacities, as identified by the teacher candidates, aligned with capacities valued by the governing body of teachers in Ontario, the Ontario College of Teachers, in their professional standards of practice for the teaching profession. The teacher candidates also identified barriers to developing and practicing these capacities, but emphasized the importance of teachers continuing to develop these capacities.

The Capacities Teachers Need to Address Equity and Diversity

The focus questions for this year's book include two about diversity and equity: "Are the capacities of current teacher graduates serving the needs of an increasingly diverse, technologically immersed body of K–12 students?" and "How are traditionally marginalized students influencing the capacities new teachers need?" The first of these suggests that the increasing diversity of students' social identities requires a change in teachers' capacities. The second suggests that the need to support students who have been marginalized—that is, students who have not received equitable opportunities because of their social identities (often, specifically, their racial identities)—also requires a change in teachers' capacities.

In this paper, we explore teacher candidates' perceptions of the capacities teachers need to address equity and diversity, based on interviews with teacher candidates in the University of Toronto's (U of T's) large initial teacher education program in 2012–2013, and relate these capacities to those identified by the Ontario College of Teachers (OCT) in its standards of practice (OCT, 2000).

Diversity of Teacher Candidates and Students

As Luke, Green, and Kelly (2010) have observed, "all contemporary educational systems are dealing with increasingly heterogeneous populations" (p. x)—that is, with groups of students who are increasingly diverse. While diversity can include many dimensions of social identity, in this comparison of teacher candidates and students in Toronto we focused on racial identity. Data are available from the Toronto District School Board's (TDSB's) 2011–2012 questionnaire which was completed by 84% of students in Grades 7 to 12 and by parents of 65% of students in junior kindergarten to Grade 6 (Yau, O'Reilly, Rosolen, Kozovski, & Archer, 2014; Yau, Rosolen, & Archer, 2013). Of the teacher candidates who were offered admission to the 1-year consecutive (that is, applicants must have already

completed a bachelor's degree) bachelor of education program at the University of Toronto for the 2011-2012 academic year, 87% answered a question about racial identity.

The Figure below is a stacked area graph showing, on the left, the cumulative percentages of students in the TDSB and, on the right, the cumulative percentages of teacher candidates (the percentages are out of those for whom data were available). Beginning at the bottom, 29% of TDSB students and 67% of teacher candidates self-identify as White. For those self-identifying as Southeast Asian, the percentages are 4% and 2%; for South Asians, 24% and 6%; and so on. The smallest percentages are of students who self-identify as Aboriginal: 0.3% of TDSB students and 0.9% of teacher candidates.

Figure. Stacked area graph comparing cumulative percentages of TDSB students to teacher candidates.

As the Figure makes clear, the students in TDSB schools are much more racially diverse than the teacher candidates in the University of Toronto's program. Ryan, Pollock, and Antonelli (2009) based on their examination of data from the 2001 and 2006 Canadian census came to a similar conclusion, finding that across Canada there were "proportionally many more students of colour than there are educators of colour" (p. 599). For Toronto in 2006, they found that 19% of teachers were "visible minorities," compared to 42% of the population, and 67% of secondary students in TDSB. That the proportion of teacher candidates who reported a racial identity other than White in 2011–2012 is 33% (Figure) suggests that the teaching force is changing, but that there is a long way to go before teacher candidates' racial identities reflect the diversity of racial identities of the students they will teach.

Teaching for Social Justice

Given a history of educational opportunities being based on students' racial identities (for a succinct history of racial discrimination in Canada, see the Ontario Human Rights Commission's 2005 *Policy and Guidelines on Racism and Racial Discrimination*), it is critically important that all teachers, whether or not they share students' racial identities, develop the capacities to address equity and diversity. Indeed, Little and Bartlett (2010) emphasize, based on their review of the literature, that while a teacher's social identity—whether similar or dissimilar to that of her or his students—affects the opportunities available to the students, so too does what they do in the classroom.

Recommendations for how teachers should address equity and diversity have varied with changing social contexts and different emphases, including multicultural education, anti-racist education, culturally relevant pedagogy, cultural competence, and so forth. When considering the capacities of teacher candidates to address equity and diversity, we will emphasize, following Cochran-Smith (2004), teaching for social justice. We will also follow Grant and Agosto (2008) in using the term "teacher capacity" to describe teachers' knowledge, skills, and dispositions.

While the frequency of use of the term *social justice* is growing in teacher education programs and research literature, there is a wide range of interpretations and applications, and disagreement regarding its meaning (Enterline, Cochran-Smith, Ludlow, & Mitescu, 2008; Grant & Agosto, 2008). Enterline, Cochran-Smith, Ludlow, and Mitescu (2008) define teaching for social justice as encompassing teachers' pedagogical methods and strategies, as well as their beliefs, their view of their work in the larger social context, how they interpret their classroom and school environments, and "how they identify and challenge inequities" (p. 270). Enterline et al. argue, based on a review of the literature about social justice in education, and despite the variety of definitions of the term, that the central idea is that "the bottom line of teaching is enhancing students' learning and their life chances by challenging the inequities of school and society—a distributive notion of justice that is either implicit or explicit" (p. 270). They point out that "this perspective is based on recognition of significant disparities in the distribution of educational opportunities, resources, achievement, and positive outcomes between minority and/or low-income students and their White, middle-class counterparts" (p. 270). Nieto and Bode (2008) express this even more succinctly: "one of our primary roles as educators is to interrupt the cycle of inequality and oppression" (p. 29). Unfortunately, those teachers who focus on disparities in achievement inside the classroom without also considering disparities in opportunities and resources beyond the classroom, may perceive minoritized children as being less able to learn than children from the dominant group (Easter, Shultz, Neyhart, & Reck, 1999). In response to the suggestion that asking teachers to teach for social justice requires them to give up a neutral stance, Cochran-Smith (2004) argues that there is no neutral stance because of the "structural inequities embedded in the social, organizational, and financial arrangements of schools and schooling" (p. 18), so that teacher educators must "help prospective teachers understand that it is impossible to teach in ways that are *not* political and value-laden" (p. 19, italics in the original).

What capacities do teachers need to address equity and diversity by teaching for social justice? One of the most influential descriptions was provided by Ladson-Billings (1995), who studied teachers who were identified as excellent and created a list of practices she observed as the teachers practiced what she termed "culturally relevant pedagogy." That list has since been refined in work by Ladson-Billings and others. For example, Parhar and Sensoy (2011) interviewed ten experienced teachers (half in elementary and half in secondary) in Vancouver who were nominated because of their reputation as educators who practiced culturally relevant pedagogy. When asked to talk about the tenets of culturally relevant pedagogy that were "most important in your practice" and "most challenging," most of the teachers' responses were related to four themes: (1) building an inclusive classroom culture, (2) expanding what counts as the curriculum, (3) the importance of a community resource network, and (4) commitment to ongoing knowledge renewal. For an overview of research in this area, including a recent focus on "culturally sustaining pedagogy," see Ladson-Billings (2014).

That these capacities should be developed in teacher education programs has been emphasized by Cochran-Smith (2004), Grant and Gillette (2006), Apple (2011), and others. What, then, are teacher candidates' understandings of what they will need to know and be able to do to address equity and diversity? This study explores teacher candidates' perceptions of the needed capacities.

Method

Participants

Eighteen teacher candidates were asked just prior to their graduation from their teacher education program to "Please describe how you feel a good teacher would address equity and diversity in their: planning, instruction, and treatment of their students and their families." For this paper, we analyzed their responses to identify the capacities they felt were important in a teacher as they were about to embark on their own journeys as teachers.

The 18 teacher candidates were case study participants in a larger integrated mixed methods study. This larger study involved inviting more than 400 teacher candidates (six "cohorts") in the 2012–2013 consecutive elementary (primary/junior and junior/intermediate) initial teacher education (ITE) program at the University of Toronto to participate in a survey at the beginning and end of the program. Of the more than 400 invited, 243 teacher candidates chose to participate in the surveys. Participants in the concurrent case study interviews were selected from those who completed the surveys and also indicated that they would be willing to be interviewed; three teacher candidates were chosen from each of the six invited cohort groups. The 18 participants in the interviews ranged in age from 22 to 44 years; 11 were female and 7 were male. Eight participants self-identified as White; one each identified as Aboriginal, Black, Chinese, Filipino, South Asian, and Southeast Asian; the remaining four selected "other" or multiple racial identities.

The case study interviews were conducted at three time points: 1) beginning of the year; 2) middle of the year, after their first practicum; and 3) end of the year. It is from one question in the third interview, in April of 2013, that we have drawn data for this paper.

The first author conducted all of the interviews; this helped to ensure consistency in question delivery and to develop and maintain rapport with participants. As well, the interviews were conducted in the same building where the participants had their classes. During the interview, the first author audio-recorded the sessions, which were later transcribed, and also took notes.

Analysis

The notes the first author took during the interview serve as the first level of analysis because they are her summary and interpretation, in the moment, of the key points of what each participant expressed within the interview. As recommended by Creswell & Plano Clark (2011), the second level of analysis involved first reviewing the level one analysis/summary notes for all 18 teacher candidate

participants more than once to get a sense of the whole range of responses. During this phase, the first author also regularly consulted the transcripts (raw data) for quotes that might help to better illustrate a theme in a participant's own words. During and after getting a sense of the data as a whole, she classified the data according to initial emergent themes, using participants' own words, as much as possible. For the second level of analysis, the researcher initially developed 10 theme codes: modelling; get to know your students; don't lower expectations / high expectations for all; reflective practice; create safe and supportive / inclusive learning community / space; professional development; inclusive practice; scaffolding a critical lens; differentiate instruction; and student-centered practice.

The third level of analysis involved combining related themes and creating a common theme lexicon. The second author also reviewed the coding, after which, they finalized the coding lexicon together. The four themes resulting from the third level of analysis were: student-centered practice; professional development; inclusive practice; and establish a safe learning community.

Finally, the first author also completed a separate but related analysis of another part of the interview: "What obstacles, if any, do you think the good teacher would have to overcome . . . ?" Beginning again with the interview notes, which served as the level one analysis, in a second level of analysis, the first author summarized the obstacles to teaching for social justice that were identified by the participants.

Results

The four main capacities that the teacher candidates identified as important to teaching for social justice were student-centered practice; professional development; inclusive practice; and establish a safe learning community. It is important to note that, while there are four distinct capacities for teaching for social justice that emerged from the interview responses, they are also inextricably linked. For example, inclusive practice and establish a safe learning community are discussed separately, but we question

whether it is possible to have one without the other; we view them as distinct but tied to each other or overlapping.

Student-Centered Practice

According to the teacher candidates, student-centered practice means that a teacher has the capacity to recognize and treat each student as a whole child (where the whole child includes considerations of academic, social, and home life) then address planning and instruction relevant to each whole child learner. As one teacher candidate expressed it:

> Why are you trying to be equitable, or differentiate or this and that? It's because you're dealing with a person. You're dealing with their feelings and with their future, with their lives, with their concept of self-worth, and you gotta remember that your actions will impact those things, and if you're not compassionate you won't think that and you might just plow through and do some damage. (Participant 3**)**

The importance of recognizing that children's needs were more than just the academic was emphasized by several teacher candidates. For example:

> It's like sometimes you just need to throw curriculum out the window, honestly because there's more important things in life that they need to learn . . . So I think that a good teacher recognizes that, but it's not always goals that, like you can't just like tick things off the checkbox and say, oh, this is what they need to know like teaching is so much more than just curriculum and assessment, and like math and science, it's life, more than anything you're teaching life. (Participant 14)

The teacher candidates asserted that to understand what students really needed required getting to know the students and their families as people with lived histories and finding out about students' interests and ability levels and letting that inform planning and instruction. The participants acknowledged that it was important to not make assumptions about what kids can do and where they're coming from. As one participant expressed it:

> If you don't know your kids, you don't know how to teach your kids. . . . But I mean, you got to get to know your kids and you got to know what they want to learn because kids learn what they want to learn. . . . You gotta give it purpose to the kids, and the only way

> to find out how to make it purposeful or meaningful for the kids is to know them. . . . Everything a kid says to you is founded and it's real, so value it. (Participant 5)

The other main aspect of a capacity for student-centered practice expressed by the teacher candidates involves using differentiated instruction. To summarize, this means identifying the range of students' needs and planning lessons that will engage each student "where they are at." Key examples provided by participants include: using a variety of techniques and activities that address different intelligences; diversifying the daily experience, lessons, and assessments; providing many opportunities for students to demonstrate their learning; and using different methods of planning and instruction according to how students will learn best. For example:

> People do progress and people do learn and sometimes their abilities aren't shown because of maybe the way that things are taught, and that that should be planned for. There should be a variety of techniques or there should be a variety of activities that address different intelligences um, and there should be, you know trying something different, trying something new . . . there are ways of addressing their needs at that time that I think could be and should be explored and, I mean I'm learning as well so it's a learning process for everyone. (Participant 7**)**

> I think lessons and assessments and day-to-day has to be diverse in itself. I think you have to provide many varied and different opportunities for students to show their learning and to scaffold their learning and to accommodate in the moment when, you know they're not getting it. And you have to be adaptable in that way, and then I think lessons and activities and assessments and everything all of that has to be very purposeful . . . it should be relevant to the students. (Participant 16**)**

Professional Development

According to the teacher candidates, professional development means that a teacher has the capacity to seek out information, learning, and collaboration with colleagues, the community, and students. As one teacher candidate expressed it:

> [A teacher] seeks out information and asks for advice when it comes to executing certain lesson plans that they may not be sure of. . . . It also includes being inquisitive in your practices, ensuring that diversity, whether or not your classroom represents it, it's the makeup of it that is being delivered for all children to learn from 'cuz it's important, it's not about tolerating differences, it's about really embracing differences." (Participant 2)

Reflective practice was a key aspect of the capacity for professional development according to statements made by the teacher candidates. For them, reflective practice means constantly examining his or her own beliefs and practices, and working to improve professional practice for the benefit of his or her own growth and that of his or her students. As one teacher candidate explained it:

> I think a social justice educator is about humanness, being willing to be seen for who you are. I think that again, like what I said before, they are innovative and they are always learning and they are always trying new things. . . . And I think that, yeah, you would be aware of your own hidden curriculum and what you are, what you're trying, like the character or not that you're trying to instill in your students. (Participant 11**)**

Inclusive Practice

According to the teacher candidates, having the capacity for inclusive practice means making everyone feel welcomed and valued and incorporating or accounting for the lived experiences of students and their families, in the classroom and community. (Although the terms inclusion and inclusive are often used in referring to students who are marginalized within schools because of their special needs, in this context, we a referring specifically to students who may be marginalized because of their race.) For example, one teacher candidate described teachers who address equity and diversity as:

> People who are involved, deeply, intimately involved with their classes, their students and communities, who show a sincere and genuine concern for the welfare of those entities, the school, the community, the students, the family and so really went to the effort to, to accommodate and adjust for their unique needs as much as possible. (Participant 12**)**

They saw inclusive practice as having implications for curriculum:

> I would draw upon as wide a range of content and experiences. And in instruction, I would also include the students' experiences. (Participant 15)

In particular a main aspect of the capacity for inclusive practice was seen to involve helping their students develop a critical lens. As Participant 7 said, it's "about creating a [classroom] culture where equity and diversity are discussed." Key examples provided by participants include decolonizing

Eurocentric texts; bringing critical discussions to children and creating citizens of change; and modelling a critical lens of the education system—challenging through content.

Participants emphasized the importance of not having lower expectations for some students than others, saying, "Don't make assumptions about what kids can do and where they're coming from" and "Start with and maintain high expectations." Communicating these expectations to parents was also seen as important:

> And again to try to tailor lessons, to start with what they know and then expand on, to push them further. I think a good teacher would really, start with high expectations and maintain those high expectations in order to push students, and to really, I think the biggest thing as well is communication, right? So, communicate with parents what your expectations are, what you're trying to do in the classroom. (Participant 13**)**

On making equity and diversity a part of the daily experience of learning, one participant explained:

> It's also about decolonizing Eurocentric texts and, basically navigating, bringing critical discussion to, to children so they can engage in the, an important discussion which societal change right? 'Cuz essentially we're creating agents of change that are, going to be citizens in our community and so how do we then discuss citizenship and community and attributes to children, right? . . . and not homogenizing, that's another important part, not homogenizing certain groups, like within certain groups, there's great danger in doing so. So, if we look at the Black community for example, there's African diaspora, there's different Caribbeans, and so, blackness isn't just blackness and being attuned and aware of that or, when you look at queer identity, queer identity can mean anything . . . there are different intersectionalities that occur whether it be gender, sexual orientation, with class its huge because not everybody is privileged on that same continuum, right? (Participant 2**)**

These insights were gained in part through the classes in the teacher education program. For example, one participant described the insights gained in the program:

> I didn't have that awareness before, like what kind of focus our education has when it comes to the Western views and I think a great teacher is critical of that and finds ways of challenging that and bringing in diversity when it comes to content and that's so difficult I think, or so challenging, not difficult, challenging is more the appropriate word. It's so important because I don't know, these Eurocentric views are not the right view by any

> means and I think if not, and when I say that I don't say like get rid of that and focus on all the other stuff but it's about a balance and it has to be relevant to the students, you know like the texts that you bring in, the articles, and all that kind of stuff, it has to be something that's going to be relevant, that's gonna matter to the students. (Participant 16)

Establishing a Safe Learning Community

According to the teacher candidates, having the capacity to recognize the value of and to establish a safe learning community means co-constructing a learning environment with students that values, supports, and incorporates each classroom community member's lived history, abilities, needs, and voices. This included combatting bullying, as well as modeling how to show respect and providing positive reinforcement for active participation in class:

> Well, they would make sure that the students know that differences are okay and to respect and honour those differences, so that will minimize bullying. (Participant 9)

> And that if we model respect and openly—or rather explicitly—say that that's what we're doing . . . so modeling those interactions I think is key, and then, because now students already see "this is how it should be done" or at least what they see, and often kids are imitators, imitating what they see, so if you model the wrong things to them, they're going to—the feedback—they're going to adopt that and they're going to continue that behaviour. (Participant 3)

> [The teacher] has that space to care environment in her classroom . . . basically the idea of how valuing kids' opinions on the idea of maybe saying that's a good try or good try or even the idea of not always telling them, "no that answer's wrong" or just saying, "that's an interesting approach, does anybody have any, like, other approaches?" Like not always putting them down, because some kids will never be able to get the right answer on the carpet for example. (Participant 17)

Participants listed some of their favourite initial teacher education instructors and elementary teachers as key sources of inspiration for valuing a teacher's capacity to model and be explicit with their students. For example, one participant said:

> When I think of a good teacher, I really think of my instructors [at U of T], whoever I mentioned before as my favourite elementary teacher . . . or honouring the dignity of students and caring for them and showing leadership. (Participant 12)

Obstacles to Capacities

The study participants were also asked what, if any, obstacles they felt might impede a teacher's ability to practice the capacities they felt were necessary to be able to teach for social justice. There were four obstacles that surfaced time and again in participants' responses to this question: 1) self as teacher; 2) relationships with stakeholders; 3) curriculum; and 4) students.

Regarding self as teacher, participants were aware of the effects of a teacher's own biases; fear of a topic and self-efficacy beliefs regarding being able to do a subject/topic justice, especially issues related to equity and social justice; and lack of knowledge or experience with a topic or situation / behaviour pattern. For example, participants said:

> [I] learned at OISE during a presentation (by School and Society teacher candidates)—your lens really colours how you look at the world; don't always see what others needs and what's important to them. . . . We all have lenses [which] can be hard to see. (Participant 7)

> We can be our own obstacle . . . some not able to engage because not ready, but need to at least acknowledge not ready, to keep the door open. (Participant 3)

> Fear of approaching a controversial/emotional issue; of making mistakes / causing more problems. (Participant 7)

Obstacles having to do with relationships with stakeholders included lack of support from the administration, colleagues, families or the community; and disagreements about treatment of a student, how to deal with an issue, or how and whether to address a certain topic. Participants were also concerned about whether the pressures to cover the curriculum material quickly would make it hard for them to practice the capacities they valued in teaching for social justice: that is, student-centered practice, professional development, inclusive practice, and establishing a safe learning community. Finally, the teacher candidates believed that the particular struggles of the students in their classes such as: "personal, motivational, environmental issues and pressures" (Participant 12) might also make this work difficult.

Discussion and Conclusion

The Capacities and the OCT's Standards of Practice

The Table below outlines how the capacities deemed important for teaching for social justice by the 2012–2013 teacher candidates align with the capacities valued by the regulatory body for teachers in Ontario – the Ontario College of Teachers' Standards of Practice for Teaching Profession (OCT, 2000).

Table
Aligning the Capacities Relevant to Teaching for Social Justice According to the 2012–2013 Teacher Candidates With the Ontario College of Teachers' Standards of Practice

Capacities: 2013 Teacher Graduates	**Capacities: OCT Standards**	**OCT Standard / Capacity Definition**
Student-Centered Practice	Professional Practice	"Members apply professional knowledge and experience to promote student learning. They use appropriate pedagogy, assessment and evaluation, resources and technology in planning for and responding to the needs of individual students and learning communities. Members refine their professional practice through ongoing inquiry, dialogue and reflection."
Professional Development	Professional Knowledge	"Members strive to be current in their professional knowledge and recognize its relationship to practice. They understand and reflect on student development, learning theory, pedagogy, curriculum, ethics, educational research and related policies and legislation to inform professional judgment in practice."
	Ongoing Professional Learning	"Members recognize that a commitment to ongoing professional learning is integral to effective practice and to student learning. Professional practice and self-directed learning are informed by experience, research, collaboration and knowledge."
	Professional Practice	Defined above.

Capacities: 2013 Teacher Graduates	Capacities: OCT Standards	OCT Standard / Capacity Definition
Inclusive Practice	Commitment to Students and Learning	"Members are dedicated in their care and commitment to students. They treat students equitably and with respect and are sensitive to factors that influence individual student learning. Members facilitate the development of students as contributing citizens of Canadian society."
Establishing a Safe Learning Community	Leadership in Learning Communities	"Members promote and participate in the creation of collaborative, safe and supportive learning communities. They recognize their shared responsibilities and their leadership roles in order to facilitate student success. Members maintain and uphold the principles of the ethical standards in these learning communities."

Student-centered practice. The teacher candidates identified the capacity to recognize and treat each student as a whole child (which includes academic, social, home life), to get to know her or his students, to differentiate instruction, and to understand her or his responsibility to support equity and social justice through her or his work with students and families. This capacity identified as needed to teach for social justice aligns with the Ontario College of Teachers' professional standard (key capacity) of professional practice. U of T's teacher candidates agreed with the OCT that it is important for teachers to demonstrate the capacity to "refine their professional practice through ongoing inquiry, dialogue, and reflection" for the purposes of "planning for and responding to the needs of individual students and learning communities" (OCT, 2000).

Professional development. The OCT standards of practice (key capacities) of professional knowledge, ongoing professional learning, and professional practice align with the capacity identified by the teacher candidates to constantly seek to learn, improve, and reflect upon his or her own beliefs and practice for the benefit of his or her own growth and that of his or her students. According to the OCT

(2000), it is important for a teacher to demonstrate the capacity to value, reflect upon, and commit to ongoing professional learning in order to keep her or his professional knowledge current for the benefit of students and "professional judgment in practice."

Inclusive practice. According to the teacher candidates, it is important for a teacher to demonstrate the capacity to ensure that all students and their families feel included, valued, and represented in the classroom environment, instruction, and instructional materials, that they scaffold a critical lens, and maintain high expectations for all students. This capacity aligns with the OCT professional standard (key capacity) of demonstrating a commitment to students and learning. The teacher candidates and OCT (2000) agree that a teacher must have the capacity to show dedication to recognizing the "factors that influence individual student learning" and subsequently treating each student "equitably and with respect."

Establish a safe learning community. According to the OCT (2000), teachers must demonstrate a capacity to recognize their responsibility to "maintain and uphold the principles of the ethical standards" (i.e., care, respect, trust, and integrity) in the co-creation of a "collaborative, safe, and supportive learning communit[y]." This capacity/standard aligns with the teacher candidate-identified capacity to construct a learning environment in collaboration with her or his students that values, supports, and incorporates each member's lived history, abilities, needs, and voices where the teacher is explicit about and models appropriate communication and conduct.

Obstacles

While the teacher candidates identified four capacities necessary in a "good" teacher, for teaching for social justice, they also identified four common impediments to a teacher being able to effectively refine and act upon these capacities. It seems that a teacher's ability to practice with a student-centric focus in an inclusive manner that values professional development and the establishment

of a safe learning environment can be obstructed by self, relationships, curriculum, and students. That being said, the teacher candidates also often offered solutions for how to overcome these obstacles; solutions that tended to be along the lines of continually trying different ways to inform his or her personal and professional understandings of subjects and students, collaborate with stakeholders, innovate, and draw upon a wider network of resources. Overall, the common thread across all 18 teacher candidates was to work toward improving their own pedagogical beliefs and practices and the school's learning environment, resources and materials, all for the equitable support and development of students.

A Wider Perspective

The teacher candidates in this study recognized that it would be important for them to address equity and diversity in their classrooms and were able to identify capacities that they and other teachers would need. These capacities were consistent with capacities identified by Ontario's College of Teachers in their standards of practice for teachers in Ontario. The teacher candidates also understood that this work would not be easy and cited obstacles within themselves and in the school environment. Although it is possible that the participants in this study are not representative of the teacher candidates in this program—it may be that only those with a particular interest in equity and diversity volunteered to be interviewed—their insights, as they begin their teaching careers, are nevertheless encouraging.

Returning to the literature about teaching for social justice, we would be remiss if we did not ask how the teacher candidates' insights relate to that literature. For example, the themes in this study are similar to those identified by Parhar and Sensoy (2011), based on their study of experienced teachers known for their culturally responsive pedagogy, with the exception of the importance of a community resource network. It may be that the teacher candidates do not yet have enough experience to have gained this insight.

In talking about what is required to address equity and diversity within classrooms, were the teacher candidates describing teaching for social justice? Based on our analysis of their responses, we believe they were. Beyond working to understand the students in their classrooms—and their families and communities—and to incorporate what they learned into their lesson planning, the teacher candidates recognized the importance of modeling respectful interactions, combatting bullying related to diversity, and helping their students develop their own critical lenses. Enterline et al. (2008) wrote that teaching for social justice involves "enhancing students' learning and their life chances by challenging the inequities of school and society" (p. 270). The teacher candidates in this study realized the importance and the difficulty of challenging inequities.

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Chapter 18: Openings for Social Change through Critical Relational Collaborative Pedagogies

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Abstract

Teacher capacity fails as a theoretical framework for teacher education if it fails to resist entrenchment, dogmatism, and certainty. Agency is about capacity, expressed through knowledge, beliefs, and skills, which make possible informed thoughtful action. Our work in different teaching contexts is connected by relational and collaborative pedagogies, a shared orientation that informs our purpose to teach for change. Pre-service teacher education in social studies (Block) is a milieu where understanding cultural and individual differences involves questioning one's assumptions and examining one's privilege. A math methods course for pre-service teachers (Betts) situates math within a cultural framework and questions status quo assumptions about math education. Mid-service teacher leadership networks (Smith) become critical collaborative communities that develop leadership capacity. From within our diverse teaching contexts, we provide the conditions within which pre-service and mid-service teachers develop critical capacities to respond meaningfully to the needs of school-aged students who are traditionally marginalized.

Openings for Social Change through Critical Relational Collaborative Pedagogies

Teacher capacity is liberally understood as "what teachers need to know, care about, and be able to do" (Grant, 2008, p. 133). Teacher knowledge, skills, and dispositions can easily be ensnared in a technical-rational agenda, thus failing to open spaces for agency and freedom (Greene, 1988). Teacher capacity, then, fails as a theoretical framework for teacher education if it fails to resist entrenchment, dogmatism, and certainty. This critical framing of teacher capacity is complex, involving considerations of equity, difference, and agency. Agency is about capacity, expressed through knowledge, beliefs, and skills, which make possible informed and thoughtful action. If we are confronting inequities and teaching for social change, what capacities are required of teachers at pre-service and mid-service levels? Negotiating the complexity of meeting the needs of marginalized school-aged students opens spaces for pre-service and mid-service teachers to build their critical teaching capacities.

Our intent in this paper is to explore the conditions within which pre-service and mid-service teachers develop critical capacities to respond meaningfully to the needs of school-aged students who are traditionally marginalized. We will draw on our experiences as educators in three distinct settings: namely, pre-service mathematics teacher education (Betts), pre-service social studies teacher education (Block), and mid-service teacher leadership development (Smith). We do not believe that we can deliver critical capacities to our learners. Rather, we use relational and collaborative pedagogies to intentionally create the conditions within which our participants can develop critical capacities to respond to the needs of school-aged students who are marginalized. Our shared orientation toward pedagogy and the contexts within which we work allow us to address how traditionally marginalized students influence the capacities needed by teachers.

Teaching with relational and collaborative pedagogies is a shared orientation that informs our purpose to teach for change. We assume that education should embrace issues of social justice, that knowledge is partial and negotiated, and that teaching is mutually empowering among all participants. Rather than focusing on the learning of individuals, relational pedagogies involve learning-with-others by focusing on developing trusting, supportive, and resilient relationships. Collaborative pedagogies integrate multiple viewpoints, synthesizing perspectives that could not have developed from individuals and capitalizing on the possibility that the whole is greater than the sum of its parts. As professors, we dialogue with pre-service and mid-service teachers as a collective, and we provide opportunities for individuals and groups to reflect on their experiences. Participants often face discomforts about teaching that emerge from their primarily privileged status. We embed our curriculum in both the personal and historical, asking participants to genuinely acknowledge their own positionalities.

Our notion of critical capacity is built from four interconnected boundary-spanning capacities: introspection, interpersonal skills, contextual knowledge, and catalytic capacities (Evans, 2012). Introspection includes the ability to reflect on one's privilege and demonstrate cultural awareness. Interpersonal skills, such as how to build trust and work effectively with others, are developed through participating in a critical community. Contextual knowledge is developed within a particular pedagogical context by engaging with learners and responding to their realities. These three approaches articulate a strong foundation for developing the fourth, the catalytic capacities of pre-service and mid-service teachers.

As teacher educators we aim to develop three types of capacities in pre-service and mid-service teachers: contextual, critical, and catalytic capacities. Contextual capacity refers to the ability of an individual to observe, notice, and listen carefully so as to "read" a particular

environment. The ability to be flexible and responsive when presented with different contexts is a valuable, if not essential, capacity for teachers to develop. Critical capacity requires an understanding of power and how it manifests in communities. To have critical capacity means you can analyze a situation, determine the current and historical power structures in action, and recognize and name their impact. Catalytic capacity is the ability to do what it takes to move an initiative forward by engaging others and bringing about collective action. To have catalytic capacity is to be an agent of change, someone who has the skill, the will, and the wherewithal to create change in partnership with others.

This paper reflects our relational and collaborative pedagogies in both methodology and content. It is a collaborative reflection on three disparate but related teaching contexts. Our work is in different teaching contexts: math and social studies pre-service teacher education, and mid-service teacher leadership. The collective reflection is focused on how each context demonstrates possibilities for developing critical capacities to respond to the needs of school-aged students who are marginalized.

We explore the conditions within which our participants can develop critical capacities to respond to the needs of school-aged students who are marginalized through a commitment to methodology that is situated and empowering (Gubrium & Holstein, 1997; Lather, 1991; Stringer, 2013). Knowing is partial and embedded in the intersubjectivities of all who participate, including our own subjectivities as dually researchers and teachers. We work directly with pre-service and mid-service teachers to co-construct critical learning communities for the development of teachers.

We position ourselves in these learning communities as both facilitators and co-participants in the learning process. Evidence of learning is embedded in our teaching contexts. It has multiple sources: recordings and field notes of learning community discussions, interviews with

participants, and written products of learning by participants. It is extracted from our three individual studies and connected by our shared pedagogies. Our reflective collaboration on these three experiences established our commonalities. Our relational and collaborative pedagogies create opportunities for critical capacity development among the participants in the differing contexts of our work.

In the next three sections, we explore these forms of capacity from within our teaching contexts: Pre-service teacher education in social studies (Block) is a milieu in which understanding cultural and individual differences involves questioning one's assumptions and examining one's privilege. A math methods course for pre-service teachers (Betts) situates math within a cultural framework and questions the status quo assumptions about math education. Mid-service teacher leadership for social justice networks (Smith) include critical collaborative communities that foster the development of leadership capacity. We conclude by drawing together commonalities in the capacity development of participants embedded in quite diverse settings.

Inviting Difference in Social Studies

(Lee Anne Block)

Given the multiple cultures, languages, abilities, sexual orientations, and experiences of students in many Canadian schools, teachers must be able to encompass multiple perspectives to understand and meet the needs of students. For many pre-service teachers, their varied personal experiences are rooted in a shared dominant perspective (Tupper, 2011). Pre-service teachers generally come from dominant groups (Ladson-Billings, 2005). The majority of pre-service teachers in Manitoba faculties of education are of the dominant culture (Tavares, 2006), which is reflected by the general teacher population. Ryan, Pollock, and Antonelli (2009) identify that only a small percentage of Canadian educators in primary and secondary schools are racialized teachers.

The capacities to work effectively with school-aged marginalized students and to develop milieus that support respect for differences are critical. Developing those capacities are central to my pedagogy. I structure a milieu which generates learners' capacities to respond critically to teaching and learning contexts. I introduce the possibility of catalytic capacity (Evans, 2012) of teaching for change and community engagement.

Developing those capacities requires dealing with the tensions inherent in negotiating difference. Understanding cultural and individual differences involves questioning one's assumptions and examining one's privilege. For pre-service teachers in my social studies courses, this questioning has often been a demanding process. Their teaching identities are often premised on "knowing the right answer," not on asking difficult questions (Robertson, 1997). The beliefs of teacher candidates entering education programs (Alsup, 2006; Britzman, 1991) and the culture of those education programs (Aulls & Shore 2008; Boler & Zembylas, 2003) may generate discomfort with the unfamiliar, the different. Introducing and pursuing an orientation to inquiry and a systems approach serves as a counter-balance:

> The goal of an inquiry approach to pre-service teacher education might be different from that of other approaches because it considers the nature of teaching as a process to be problematic. An inquiry approach to preparing teachers encourages them to deliberately combat their own biases and prejudices. . . . (Aulls & Shore, 2008, p.47)

Social Studies courses are structured to engage with status-quo teacher identities and to involve diverse perspectives within and beyond dominant culture. Dominance is constructed and maintained, in part, through marginalization, repression, or segregation of "Other" groups. A pedagogy of discomfort (Boler & Zembylas, 2003) assumes the presence and hegemony of a dominant culture. In examining their relative privilege, pre-service teachers may experience the

discomfort of questioning the assumptions and values that give them comfort and weave the fabric of their everyday experiences. Pre-service teachers' individual perspectives on teaching and learning and on difference need to be articulated and interrogated.

Richardson (2003) asserts that there are two meaningful approaches to changing pre-service teachers' beliefs about teaching and learning. First, pre-service teachers should be encouraged to overtly examine their existing beliefs. Second, pre-service teachers' practicum should be structured so that "the construct and propositional knowledge presented in the academic classes may be observed in practice and examined in relation to their own beliefs" (p. 13). Strategies for changing beliefs and practices and developing contextual, critical, and catalytic capacities will be examined within my teaching context. Most of the courses I teach are social studies curriculum, instruction, and assessment for pre-service teachers in their final 2 years in the education program. I teach from a social justice orientation that examines how difference is experienced in educational settings. Important strategies for working with this orientation include positionality, socio-cultural perspectives, narrative, assignments that link the personal and the social perspectives, collaborative learning, inquiry, and studying issues systemically.

Requiring that teacher candidates engage in complex collaboration is evidence of my belief that learning is socially situated (Brydon & Coleman, 2008; Davis, Sumara, & Luce-Kapler, 2008). Collaboration is a strong tool for countering the neo-liberal version of success. If collaboration is built into course work, multiple perspectives are more accessible. Teacher education is often focused through a psychological lens, rather than a sociological perspective (Haberman, 1996). In teaching social studies, my emphasis is on how the discipline encompasses both an individual and social perspective. Integrating this socio-cultural perspective—that is, moving from a focus on the personal to a focus on shared social experiences within which inequities exist—can be difficult for

pre-service teachers. We discuss how dominant popular culture resists this move and how the Manitoba curriculum insists on it. Both a critique of dominant culture and strategies for developing community and collaborative learning are pursued. For example, curriculum development is understood to be a reflection of social values and must be analyzed for what stories are not told, or are misrepresented. Curriculum development is also understood to be a collaborative process of knowledge production.

Constructing a milieu within which there can be honest acknowledgement of difference is integral to working with school-aged students who are marginalized. How to construct such a milieu is idiosyncratic to specific teaching and learning contexts, but its construction will involve instructors working through their own assumptions about teaching and learning, and equity. To critique dominant culture, the pre-service teachers and I must recognize our positions within it. The privilege attached to a pre-service teaching identity (post-secondary education, respected professional identity) is acknowledged, as is my privileged position as professor. Privilege is relative and is also linked to others' lack of privilege.

Narrative is integrated in my teaching and is one way to demonstrate relative privilege. I tell different kinds of stories. Narratives of my experiences as a classroom teacher are central and serve to legitimize and illustrate my theorizing. I often choose stories that highlight the experiences of "difficult" students who are re-positioned as "different" students requiring equitable responses. Other stories are about my experiences as a pre-service teacher. These include stories of my loss of middle-class privilege or respectability, having separated from my partner and started teacher education. These stories are not designed to reinforce my "successful" path through the field of education. Rather they identify that social positions are changeable. One is called (Hall & du Gay, 1996) into place by social constructs and one's social position can be reassigned by circumstance.

One also has agency in responding to these "calls." Modeling critical self-reflection reinforces that same process with pre-service teachers. Their capacity to reflect critically on their own social position and those of others evolves.

Assignments such as the Family Educational History, given early in the term, are structured for pre-service teachers to explore their personal experiences of education in a social context. They are asked to find out and chart the schooling history for as many generations of their extended family as possible. Then they reflect on how their family's educational history may have influenced their own experience of education by connecting personal educational experience to family educational experience, connecting family to cultural context, and demonstrating understanding of the historical context of education. The assignment also draws attention to how family is defined differently in different contexts. For example, the assignment criteria cannot insist on three or four generations as different family histories reflecting external or internal conflicts will determine how many generations are available. Students witness and experience the requirement for flexibility and differentiation in constructing an assignment. They may also become more aware of the variety of families in their future school-aged students' lives.

From this assignment, I also learn more about the differences in my pre-service teachers. When I read their work, I find that many of these pre-service teachers are the first or one of few family members to attend university/post-secondary education. Their apparent middle-class privilege is often only one or two generations deep. This changed status may be a factor in why individualism, respectability, and success are so valued.

Pre-service teachers bring their values of individualism, respectability, and success into the practicum experience and with these values come expectations of their school-aged students, whose experiences of marginalization have affected their relationship to respectability and success. At my

faculty, pre-service teachers' practicum schools are often found in the poorest parts of the city. To assist in preparing them, I teach about poverty and its effects on students' lives and learning. Pre-service teachers are expected to consider the causes of poverty. Often poverty is seen as a state of being caused by ineptitude or bad luck, rather than a result of economic inequities. Looking at this social issue systemically requires pre-service teachers to shift their perspective from individual narratives of success and failure to collaborative understandings of shared responsibilities. In a similar way, pre-service teachers can shift perception of Aboriginal culture, predominant in many of their practicum schools, by grasping the influence of systemic racism, colonialism, and power relations. When these experiences of social systems are taken up and integrated, pre-service teachers may shift their teaching position as well as their perspective. Rather than perceiving the teacher's role as "saving one child" (from poverty or poor parenting or social exclusion)—a thematic refrain in student reflections—pre-service teachers will understand their agentic potential to act collaboratively for change for their class, school, or community.

This section has considered how teaching strategies for changing beliefs and practices may develop contextual, critical, and catalytic capacities in pre-service teachers. This process is premised on the belief that such changing of beliefs and practices is a required activity of a teacher educator. However, the strategies I have outlined should suggest that I understand the role of the teacher educator as inviting and involving pre-service teachers to critically reflect on and relate to the social positions of themselves and others, rather than to prescribe change. Developing those capacities will support their work with school-aged children and youth who are marginalized.

The capacity for pre-service teachers to plan critically in relation to social and cultural context will be taken up in more detail in Betts' discussion of mathematics teaching which follows. The capacity to be a catalyst for change is actualized in Smith's discussion of teacher leadership in

mid-service, where teachers' more critically reflective understandings of their identities have positioned them to take action.

Beginning to Un-colonize Mathematics Pedagogies

(Paul Betts)

The discipline of mathematics is perceived as a great and certain body of knowledge, a crowning achievement of humanity (Schoenfeld, 2004). "Teachers must understand the certain mathematical knowledge that they teach." Aphorisms of this nature often surface around teacher knowledge in mathematics education. Within a technical-rationalist agenda, where knowledge is complete, certain and realizable, this aphorism is rarely inspected critically. But Greene (1988) reproaches our sensibilities, suggesting even disciplines such as mathematics and the natural sciences must succumb to a freedom agenda: knowledge, even when cast as certain, is grounded in perspective, which opens a space for a critical rendering of teacher capacity in mathematics education.

According to Schoenfeld (1989), many school-aged students believe that mathematics is a solitary, black and white activity, and that learning math involves memorizing unrelated procedures and practicing their use so that any math problem can be answered quickly. These beliefs about mathematics are the result of experiences in what are often referred to as traditional mathematics classrooms. Whether mathematics classrooms tend toward traditional or reform-based practices, if they are embedded within a technical-rationalist agenda, if there is no critical interrogation of mathematics teaching pedagogies, then these practices can still be colonized by the status-quo of mathematics education.

The pre-service teachers I teach are predominantly products of the status-quo of mathematics education. Mathematics educators tend to believe that the problem of mathematics

teacher education is one of helping pre-service teachers take up reform-based math teaching practices, which are foreign to their past experiences as learners of mathematics. “Changing what students *value* in mathematics is a much harder challenge than teaching them mathematical procedures and application of formulas (McGowen & Davis, 2001, p. 875). “Changing such views requires, at least in part, novel and rich experiences with mathematics that cause teachers to see mathematics and mathematics teaching in a new light” (Gadanidis & Namukasa, 2005, p. 1). This problem of causing “change” in mathematics teachers is framed by constructivism, where knowledge is built on prior experience. In simplest terms, the problem of reforming mathematics teaching is one of transforming mathematics teachers.

I teach a standard university course concerning the teaching of mathematics to children in Grades K–4. This teaching methods course considers reform-based mathematics curriculum, instruction, and assessment within the Manitoba context, especially in relation to inner city needs. The course is embedded within a teacher education program that emphasizes collaboration and bridging the gap between educational theory and teaching practice (Betts & Block, 2013). In particular, the course emphasizes learning about teaching mathematics by noticing and responding to how diverse children learn mathematics.

The main assignment of the course is built from principles of collaborative action research and lesson study (Fernandez, 2002). In particular, pre-service teachers, with a partner, work with a small group of children at their school placement to cause learning of mathematics. Within a collaborative and cyclical framework of planning, implementation, and reflection, the pre-service teachers work on observing and analyzing connections between children’s learning and their actions as mathematics teachers. Further, the teacher candidates initially assess the children, so that their first activity is based on children’s learning needs. Weekly interventions with these children

allow the teacher candidates to observe children's development and thinking on a particular math concept over an extended period of time.

The pre-service teachers in my course are placed in schools that serve high needs and at risk populations, including low SES and recent immigrant English language learners. They are also placed in pairs into each classroom, so they have a learning peer with whom they collaborate on course activities and school-based experiences. Each pair of pre-service teachers completes four planning-implementing-reflecting cycles, and then a final report on their learning as part of the main course assignment. Class time is also dedicated to conversations concerning their school-based experiences of the assignment. The assignment and course design set up opportunities for pre-service teachers to develop competencies that may transform their mathematics pedagogies. These pedagogies are grounded in mathematics education reform, and consider the role of children's identities, both individual and collective, in the learning of mathematics; the role of teacher's design of activities in causing learning; and the interconnectedness of teaching, learning and assessment.

But transformation toward reform-based pedagogies of mathematics teaching should be problematized by a rejection of a technical-rationalist agenda. The mathematics education reform agenda can be silent on the idea of empowering pedagogies. Designing learning environments in which each learner could choose how to learn, and even what to learn, is a powerful opportunity for learning. This enabling of the learner operates at two levels. I design opportunities for my pre-service teachers to choose how and what to learn about mathematics teaching. The learning experiences my pre-service teachers design for the children they work with include opportunities for these children to co-develop their own strategies, rather than simply reproduce an adult-authorized mathematical procedure.

It is difficult for pre-service teachers, often coming from a background of privilege and from the status-quo of mathematics education, to recognize their own history with mathematics as important to shifting their perceptions of teaching. Their apparent "success" (they are in university) with the current structures and practices of schooling (Feiman-Nemser & Buchmann, 1985) reinforce the status quo. Reflecting on their discomfort with school-aged students who struggle to learn is an opportunity for pre-service teachers to inspect the status–quo of mathematics teaching. Although these pre-service teachers are not positioning themselves as either resistors of the status-quo or as colonizers of learning, it was clear from their reflections that an empowering pedagogy emerged from their in-the-moment efforts to mitigate student frustration or from a desire to differentiate instruction because they cared about the unique learning needs of the children they were working with closely.

Stories of children struggling and pre-service teachers trying to respond to this struggle begin to uncover the pitfalls of an uncritical reform agenda; we can uncover how a reform agenda can be colonized by our own past experiences with mathematics. The pre-service teachers I work with face this colonization by their personal histories of mathematics when they work with children from marginalized backgrounds. For example, after experiencing the struggle of a child to use a number line instead of their fingers to calculate, two pre-service teachers reflected:

> In making the boy use number lines, which he hates, he shuts down and doesn't work at all. Wouldn't it be better, in that case, to allow him to use any method as long as he came up with the answers and could explain his strategy? From this experience, I realized how frustrating it must be when they are expected to do something that doesn't make sense to them.

These pre-service teachers entered this experience believing that using fingers to calculate is "wrong" because it is inefficient. Reflection on this experience has resulted in a shift in their perspective. Working relationally with children from diverse backgrounds and reflecting on this work served as an opportunity for these pre-service teachers to shift their personal relationship with math to one that is not ahistorical.

Within the status-quo, the pervasive and uninspected belief that mathematics is a black and white body of knowledge is interlaced with a belief that learners of mathematics either get it or they don't. This dichotomous perception of mathematics is ubiquitous: it is acceptable as an adult to "not get" mathematics. Pre-service teachers' past experiences with learning mathematics are not fertile ground for interrogating the status-quo of mathematics. A pre-service teacher's relationship with mathematics is usually dichotomous: either they are or are not one of the people who were successful in school math. Because this dichotomy is entrenched, actually dislodging it is a potent experience for pre-service teachers.

That knowing of mathematics is not dichotomous often comes as a surprise to pre-service teachers—even a Eureka moment. It is hard for pre-service teachers to see the learning of mathematics as partial, contextual, and organic. Coming to a non-absolutist and non-dichotomous understanding of mathematics is a point of contention and discomfort for the pre-service teachers in my course. We work with this idea theoretically during university coursework, but it is school-based experiences that bring this idea to life. For example, two pre-service teachers noted this idea while reflecting on their ongoing assessments of what a child could do:

> We were surprised and delighted to stumble across the concept of the "could do it, but couldn't do it" phenomenon with one of our students. This phenomenon refers to a child's learning and comprehension depending on the context or environment. A

> child may exhibit an understanding of a particular concept in one context, but then show no understanding of that same concept in another context.

That a child did learn, in the face of supposedly not being able to learn, or that a child could know something partially, surprised and challenged these pre-service teachers. Noticing the learning of mathematics by diverse children, as occasioned by the course assignment, became an opportunity for pre-service teachers to inspect a meta-narrative that mathematics is universally understood and learned.

That mathematics is not universally learned, coupled with learning experiences with children from diverse backgrounds, leads to opportunities for pre-service teachers to implicitly face the idea that mathematics is not acultural. In responding to the cultural aspects of learning mathematics, pre-service teachers can begin to develop what Ladson-Billings (2005) refers to as a *culturally relevant pedagogy*. It is in recognizing a connection between culture and learning mathematics that pre-service teachers can see themselves as agents of change—that they can change the way they and children engage with mathematics.

The pre-service teachers I work with begin to notice mathematics learning as cultural because they work with children who are English language learners. They begin to notice the metaphors of their language, both spoken and acted, as embedded in culture. After trying to teach children the mathematical meaning of "more" and "less," for example, two pre-service teachers reflected:

> When asked "what is one more than 15," they would be confused and one student said, "Is that going up or down?" Noticing that they were struggling I showed them with my hands that "more is like this (hands stretched out) and less is small like this (hands close together)." The students had been using a visual of the number line to

> help them but this was obviously not helping them with the terms. When they said "is that going up or down?" they showed an understanding that more and less means going up and down in value. I realized however that the number line visual was not enough in regards to their understanding of the terminology.

This reflection illustrates possible metaphors concerning the words "more" and "less" and the learning artifact, a number line, used to explicate the concept of magnitude. A teacher could kinaesthetically model more and less by moving their hands further apart and closer together, respectively. On a number line, a teacher could point further to the right or to the left for bigger and smaller. In all cases, meaning is embedded in a metaphor of words and actions. The teaching problem is not about decoding terminology. Rather, these pre-service teachers are realizing that language metaphors are not universal, that their use of language is not necessarily aligned with the sense making of the children, which prompted them to re-examine their pedagogy as it related to the role of language in mathematical learning. Without inspecting these metaphors, it is just as easy for a supposedly reform-oriented learning environment to colonize learning.

Reform-based mathematics pedagogies that remain embedded in a technical-rational agenda are at risk of failing to meet the needs of diverse learners, particularly those marginalized in relation to race, gender, class, and ability. A freedom agenda is possible by challenging the hegemonic status-quo of mathematics education, which is cultivated by listening to children and noticing the personal, historical, and cultural aspects of any pedagogy. These pre-service teachers, through their interpersonal skills in responding to the unique needs of the marginalized children they work with, and through the opportunities to be introspective concerning the personal, cultural, and historical aspects of mathematics learning hidden by the status-quo, develop capacities to act as teachers who resist colonizing mathematics pedagogies. Pre-service teachers who develop these

contextual capacities enable learning across personal and cultural divides. In the next section, Smith illuminates further the potency of a catalytic capacity for change within the critical reflections of mid-service teacher leaders.

Revitalizing Teacher Leaders: Critical Collaborative Communities (Cathryn Smith)

Teacher leaders are powerfully positioned to be agents of change as a result of their personal, positional, and relational power. Occupying formal and informal positions of leadership, teacher leaders maintain strong relationships, communication, and respect with colleagues, students, community members, and school administration. "Teacher leaders lead within and beyond the classroom; identify with and contribute to a community of teacher learners and leaders; influence others toward improved educational practice; and accept responsibility for achieving the outcomes of their leadership" (Katzenmeyer & Moller, 2009, p. 6). Mid-service teacher leaders often step into a leadership role to respond to students who are marginalized and whose needs are not being met. In this delicate position teacher leaders have the need to serve as boundary spanners (Bass, 1999; Evans, 2012) who help to strengthen communication and understanding between members of school communities. Advocating for change can be a delicate and rewarding, yet challenging and isolating, choice for these individuals. Participating in a facilitated critical community can provide mid-service teacher leaders with the necessary space and a community with which to develop their leadership capacity.

Critical communities gather together knowledgeable individuals over extended periods of time, with a shared focus to engage actively in critical reflection, dialogue, and action planning (Smith, 2014). The intent of a critical community is to provide challenge and support to group members, as well as opportunities to envision a different future (Lipton & Welman, 2011). A "community offers the promise

of belonging and calls for us to acknowledge our interdependence. To belong is to act as an investor, owner, and creator of this place" (Block, 2008, p.3). Carving out predictable, regular time and space for dialogue and introspection is a necessity in the lives of busy educators. Teachers often rush from task to task acting in and on the world without time to reflect on the appropriateness or impact of their actions. The aim is for a facilitator to co-construct with community members a contemplative and dialogic space (Gadamer, 2002; Palmer, 1998; Shields & Edwards, 2005) in which mid-service teachers can reflect on their current involvements, clarify their personal beliefs, develop leadership skills, and encounter and trial new ideas. Critical communities usually develop high levels of trust and can become safe spaces in which members can be vulnerable. With the support of critical friends, mid-service teacher leaders encounter a greater diversity of ideas and are better able to experience discomfort and think deeply about their practice. Engaging in challenging dialogue helps us to clarify our thoughts. Doing so within a network of supportive colleagues allows participants to gather strength from each other, which can sustain them in the face of the struggles they encounter as they work to create change in schools.

Different types of lived experience inform my interpretation and description of the nature of facilitating learning within critical co-constructed communities. The foundational experience is facilitating an intensive leadership development program for a group of nine mid-service teacher leaders engaged in helping their colleagues deepen their understanding and commitment to social justice. This network gathered for 7 full days over a 9 month period and is the context in which seven strategies for co-constructing community to be discussed here were developed. A second experience is facilitating professional development networks for mid-service teacher leaders in various school divisions who are interested in strengthening their understanding and ability to navigate change and conflict by developing their skills as agents of change. Two different groups of workshop participants, organized by the provincial teachers` association, met for 2 days each with a 3 month gap between sessions. Another pair

of networks, this time part of a rural learning consortium, met for 3.5 days each over a period of 7 months. I apply many of the same strategies with my cohorts of mid-service graduate students studying educational leadership. These types of critical communities develop through and are enhanced by the use of specific processes designed to enhance critical reflection and co-construct community.

To say that a community is co-constructed implies that there is collaboration or a sharing of power between the facilitator and members of the group, and that decision-making and responsibility for the atmosphere, ambiance, and effectiveness of the group is shared amongst all group members. Over time there is a movement away from facilitator decision-making towards collective determination of direction and process. One teacher leader describes this experience: "This process is kind of a planned intentional thing but it has also become very organic" (participant cited in Smith, 2014, p. 362). From my perspective as facilitator, "It was a respectful sharing of the space. . . . I just opened up the process and got out of the way" (researcher reflection cited in Smith, 2014, p. 363). Seven strategies I use to foster an environment of shared ownership are sharing facilitation, sharing learning, sharing feedback, profiling group dynamics, participant reflections, activity breaks, and sharing circles.

By sharing facilitation, expertise is distributed amongst members of the group and members are seen as sources of knowledge and expertise. As groups become stronger over time, members feel a desire to contribute to the learning of the group and feel drawn to step forward and offer their own skills, contextual knowledge, and experience to others. One participant shared the inspiration he felt as he watched one of his students make a presentation to the school board on safety issues he was facing as a gay student: "Watching that courage was the most inspiring, watching that person just lay it out there. You can't run away, I am sitting right here . . . and you (trustees) are responsible for (my) safety" (participant cited in Smith, 2014, p. 347). Similarly, group members spontaneously begin to integrate their learning from other contexts such as graduate courses,

professional development, or experiential learning opportunities into discussions, and freely share their experiences with the group. In sharing facilitation and learning they enrich all the group members, deepen and clarify their own understanding of their newly acquired knowledge, and further process their experiences. One teacher leader shared what she learned by creating a medicine garden and mural with a group of Aboriginal youth leaders and students in special education. “One of the reasons I do them is so our students have a physical presence. . . . Trying to build that inclusivity and make them feel safe and welcome” (participant cited in Smith, 2014, p. 348).

Essential to an individual’s willingness to share are the relationships developed and the support and feedback received from the group. Sharing feedback provides a way for group members to offer each other honest comments about their personal strengths in the community: “For me I think the group is a place of safety. When you have a place of safety bonding happens automatically within the group because you feel free to express whatever” (participant cited in Smith, 2014, p. 362). Facilitators can provide opportunities for group members to write positive affirmations in which they articulate what it is they value in other individuals. Receiving such affirmations provides encouragement and helps mid-service teacher leaders engaged in the difficult and delicate process of serving as boundary spanners to appreciate their individual gifts and strengths.

Profiling group dynamics can involve learning about the characteristics of effective groups and identifying patterns and personal attributes of group members. By examining their individual and collective qualities a group can identify potential gaps and areas that may require attention as they interact together. To build on these interpersonal insights group members can be asked periodically, as part of requested participant feedback, to identify strengths, challenges, and goals

for their own participation and the functioning of the group as a whole. Asking mid-service teacher leaders to reflect on how others contributed to their own learning helps builds recognition and insight into the correlation between the co-constructed community and learning.

Activity breaks offer group members a chance to let loose and move, as well as have fun together. Activity breaks satisfy the description of carnival offered by Shields and Edwards: "Carnival is change and flexibility; it is the unanticipated, the unusual, the unexpected. It brings to the fore a new conception of space and time, of relationships and interactions" (2005, p. 147). By suspending the usual norms for interaction, carnival helps vary the relationships and allows people to see others in new and different light-hearted contexts. The non-verbal nature of the activities provides a welcome break from intense verbal interchanges, facilitates understanding of each other as individuals, strengthens relationships, and consequently enhances dialogue (Shields & Edwards, 2005).

Arguably the most powerful strategy for co-constructing a critical community is the use of sharing circles to wrap up sessions. Participants stand in a circle and take turns voicing their thoughts about a particular session in an unstructured fashion. Observations shared during the circles are often more personal, spontaneous, and revealing than written comments. As a result, the sharing circles contribute to building a stronger co-constructed community. Comments such as "Thank you for bringing the intensity" (participant cited in Smith, 2014, p. 351) often include expressions of gratitude: for listening, for pushing their thinking, for supporting them through a tough experience, or for mentoring. Other individuals express appreciation for the strength of the group, the regular opportunity to gather together, and processes that help them reflect on their experience and what they are learning. This very important ritual allows groups to finish their time together in a calm, personal, and inclusive fashion.

An additional type of response often heard in a sharing circle focuses on the impact of participating in a critical community: “I am being asked to be in a leadership role which is new for me. . . . To have a venue to reflect on that process and some of the frameworks surrounding it is so important” (sharing circle participant cited in Smith, 2014, p. 351). Participating in such networks helps mid-service teacher leaders overcome the isolation they often experience in their schools and provides sources of inspiration, affirmation, and strength: “It’s nice to have a group of people who are all on the same page. You just know that I am not crazy; everybody here is on the same page and is thinking the same thing. It is nice to have that affirmation” (sharing circle participant cited in Smith, 2014, p. 352). One member described their group as like rehab, offering a place to “face all your insecurities and faults” without fear of being judged (cited in Smith, 2014, p. 352). As teachers engage in reading, reflection, and discussion they find themselves feeling invigorated, liberated, and empowered, and describe their shared experience as both nurturing and energizing. Mid-service teachers value the opportunities to problematize their work, and find that dialogue in particular helps them to clarify and deepen what they do. Each time they gather they feel more committed to their work and supported to sustain their engagement: “this cohort inspire[s], sustain(s) me” (participant cited in Smith, 2014, p. 366). According to Little, supportive cultures increase teachers’ “sense of efficacy, professionalism and learning” (as cited in Stone-Johnson & Kew, 2012, p. 158).

The design of the co-constructed communities, my lived experiences with the facilitation processes, and their impacts on participants suggest shared qualities which contribute to developing the capacities of mid-service teacher leaders. V*oice*, *choice*, *ownership*, and *change* (or *action*) are important elements in developing the agency of teachers (Gallavan & Webster-Smith, 2012, pp. 52–53). Critical co-constructed communities reflect the first three of these beliefs: voice is addressed through

group membership and dialogue, choice is integral to the group activities, and ownership grows through participant feedback and input into future sessions. The missing principle of action or change is introduced into the communities by having mid-service teacher leaders conduct action research (Stringer, 2013) in their school contexts. The principle of action for change is thereby embedded into the discussions of the groups and becomes an integral part of the dialogue, mentoring, and reflection cycles included in group sessions. By conducting action research mid-service teacher leaders come to understand the continuity of working for change: "This journey never ends—there is always another action research cycle when you are involved in social justice and/or leadership" (participant cited in Smith, 2014, p. 293). And they come to understand the significance of small actions: "Small steps are the important ones. . . . It is not so much the magnitude of the self-reflection and subsequent action, it is that the action is well chosen and relevant to what is needed now" (participant cited in Smith, 2014, p. 293). Participants in all three contexts report that conducting action research keeps them focused on their target, mindful of process, and attuned to collecting and reviewing data to assess their impact. Embroiling mid-service teacher leaders in the action research process ensures they develop catalytic capacities and see themselves as agents of change in their context.

This section has focused on the use of critical relational collaborative pedagogies with mid-service teacher leaders. Their critical capacity as boundary spanners is strengthened through frequent opportunities to engage in individual introspection and collaborative sense-making with others in a co-constructed community. Strong interpersonal relationships and an environment of trust and empathy are developed through the use of specific collaborative processes. As individual teacher leaders implement and share with others their context-specific action research, they enhance the catalytic capacity of each community member to understand and respond effectively to the needs of marginalized school-aged students.

Conclusion

Our intent in this paper was to explore the conditions within which our participants can develop critical capacities to respond meaningfully to the needs of school-aged students who are traditionally marginalized. As our analysis developed, we understood that this process was about creating possibilities for pre-service and mid-service teachers to learn about and experience these critical capacities through intentional, relational, and collaborative pedagogies. Evidence of critical capacity development was experienced and documented through pre- and mid-service teachers' participation in reflective and action-oriented assignments and collaborative dialogue. Our sense of critical capacity is framed by the four capacities identified by Evans (2012), namely, introspection, interpersonal skills, contextual knowledge, and catalytic capacity. These capacities contribute to teachers functioning as boundary spanners with the ability to support diverse learners in Canadian communities.

Lee Anne Block sought to establish the conditions within which social studies pre-service teachers could question their assumptions and beliefs. Important strategies for troubling our possibly privileged positionalities included socio-cultural perspectives, narrative, assignments that link personal and social perspectives, and studying issues systemically. Introspection, including the ability to reflect on one`s relative privilege and to demonstrate cultural awareness, is exemplified in Block`s work with pre-service teachers while exploring their family histories and how these are embedded in their teaching. Opportunities for contextual knowledge are evident in Block's efforts to model her positionality through story, to shift from personal to shared social experience within which inequities exist, and to critique dominant culture including its manifestation within curriculum. In creating the conditions for introspection and contextual knowledge, and by modelling interpersonal skills during the course, the potential is increased for social studies pre-

service teachers to develop catalytic capacity in their practicum experiences working with school-aged students who are traditionally marginalized.

Paul Betts built his math teaching methods course with the goal of questioning status-quo assumptions in mathematics education. A core action research assignment, with cycles of action and reflection, is intended to create the conditions for pre-service teachers to notice their own history with mathematics embedded within a potentially colonizing status-quo of mathematics education. As these pre-service teachers reflect on their efforts to respond to children of marginalized backgrounds struggling to learn mathematics, a contextual knowledge of the socio-cultural aspects of learning mathematics emerges. This emerging contextual knowledge involves unpacking assumptions about a black-and-white perception of learning mathematics, and that the nature of mathematics is historical and embedded in language. These pre-service teachers, through their use and development of their interpersonal skills within teaching moments, and through opportunities to be introspective concerning the personal, cultural, and historical aspects of mathematics learning hidden by the status-quo, develop catalytic capacities to act as teachers who resist colonizing mathematics pedagogies.

Cathryn Smith invites mid-service teachers to participate in a critical and collaborative community to foster the leadership capacity needed to create change in schools largely populated by children living in marginalized situations. Smith uses various strategies, such as sharing circles, critical action research, activity breaks, and participant reflections, to share power and decision-making among members of the group. Interpersonal skills such as how to build trust and work effectively with others are a focus in Smith's sessions with these communities. In focussing on developing interpersonal skills within a community, a co-constructed contextual knowledge emerges from the sharing of personal experiences by the participants and reflection on these

experiences. The community also values introspection by co-problematizing their work as leaders; in conducting action research, a catalytic capacity develops that is committed to sustaining the ongoing continuity of their work. Participation in a critical and collaborative community focussed on interpersonal skills is an opportunity for mid-service teachers working in schools located in marginalized areas to develop catalytic capacities as leaders of change.

When combined, our shared orientation to create learning conditions to teach for change constructs a strong foundation of ways to develop the critical capacities of pre-service and mid-service teachers. Evan's (2012) framework is reflected in the work of each of us differently. Block's, Betts's, and Smith's focus on introspection, contextual knowledge, and interpersonal skill, respectively, leads to the emergence of other capacities. Through all of our approaches, teachers develop the ability to analyze challenge, coordinate responses, and engage in social change, which are the three core elements of catalytic capacity identified by Evans (2012). Our independent experiences in developing relational and collaborative pedagogies have led us to suggest the need to insert the *critical* elements of our pedagogy into the boundary-spanning capacities identified by Evans. To be able to meet the needs of school-aged students who are traditionally marginalized, teachers must experience opportunities to develop an understanding of the systemic ways in which marginalization occurs, the impact of colonization and racism, and the multiple ways in which power impacts learning in public schools. Teachers who develop these critical capacities enable learning across personal and cultural divides.

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Chapter 19: En(gauging) Criticality in Teacher Education: Assignments with a Critical Edge

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Abstract

This chapter addresses the question of how traditionally marginalized students—namely, culturally and linguistically diverse learners from immigrant and refugee backgrounds and Indigenous communities—are influencing the capacities new teachers need. Specifically, we argue that a more robust critical teacher education pedagogy is required for education systems to affirm the diversity of perspectives, experiences, and worldviews inherent in multilingual schools. Such a pedagogy enables teacher educators both to engage teachers with the needs of diverse communities and to gauge teachers' and teacher educators' responses. Drawing on critical theory to provide the rationale for radical teacher education, we analyze four critical assignments that we have begun to implement in our practice with pre-service and in-service language and literacy teachers in two Canadian universities. These include a critical comparative analysis of curriculum policy documents, a duoethnographic experience (involving dialogue between teacher candidates from different stances) to explore aspects of diversity, a critical media assignment analyzing the voices of EAL learners and refugees, and a critical analysis of archival data from the National Centre for Truth and Reconciliation (NCTR) database. We use critical language teacher education literature, critical pedagogy, and intersectionality to inform our emerging insights and conclude with reflections on the potential for a radical teacher education paradigm to prepare teachers to confront systemic inequities and enact culturally responsive pedagogies.

En(gauging) Criticality in Teacher Education: Assignments with a Critical Edge

Introduction

This chapter explores the central question of how traditionally marginalized students—namely, immigrant and refugee learners for whom English is an additional language and Indigenous learners—are influencing the capacities new teachers need. Specifically, teachers require the capacities to both recognize and challenge multiple forms of injustice that institutions such as schools and teacher education programs perpetuate. Beyond needed changes to teacher education admissions policies and processes, we propose that a more radical critical pedagogy is required, one in which criticality is the foundational and epistemological premise upon which language teacher education is built rather than "added-on" or "infused" as another curricular topic to compete alongside other program content. To support our teacher candidates' engagement with criticality, we need to gauge the degree to which our teaching is indeed radical and their responses to our pedagogy. The term "radical," as used here, is informed by Hawkins's (2011) and Kumaravadivelu's (2012) notions of critically responsive language teacher education. To be relevant and responsive to the needs of diverse school communities, we propose that such a pedagogy can meaningfully be informed by a Freirean anti-oppressive education (Freire, 1992), and by the contemporary work of key Indigenous scholars (e.g., Grande, 2003, 2004); political economic theories (Polanyi, 2014); critical research approaches (Denzin & Lincoln, 2011; Cammarota & Fine, 2008); and the work of critics of neoliberalism (e.g., Clarke & Morgan, 2011; Giroux, 2011). In this way, both the genealogy and current impact of the Eurocentric, neoliberal agenda (McLaren, 2005) within the context of language teacher education programs can be robustly understood and critiqued and alternate pedagogies can be enacted.

As a preliminary exploration of these issues, which will be taken up further in a 3-year critical participatory action research project, we analyze four assignments that we have begun to implement

across a range of courses in initial teacher education and graduate programs in language and literacies education at the University of Manitoba and the University of Toronto. Three of the assignments pertain to immigrant and refugee issues and one explores residential school archives from the Truth and Reconciliation database. The titles of the courses in which these assignments are embedded include Current Issues in Language and Literacies Education, Supporting English Language Learners, Critical Pedagogy in Language and Literacies Education, Language and Content Instruction of English as an Additional Language (EAL) and Bilingual Learners, and Research Issues and Applications in Second Language Education.

The critically-oriented assignments we have been piloting build on our combined 50-plus years of teacher education experience across various Canadian teacher education programs and aid in infusing criticality into our courses. Our goal is to enhance teachers' capacities to both recognize and challenge injustices in schools and communities. It is important to note that the assignments are constantly refined each time they are used and the versions presented here represent the most current iterations, which will continue to evolve as we work with subsequent groups of learners. We discuss our approach to the assignments collectively because they have been designed with input from one another, though we have implemented the assignments separately since we teach in different teacher education programs in different provinces. Additionally, we have been documenting, through individual journals and recorded dialogue between us, our own perceptions and experiences as we explore the process of enacting a radical teacher education practice in our respective contexts, and these sources inform the emerging insights presented here.

Our inquiry is based on the following guiding question: What are the experiences of designing and enacting assignments with a critical edge in pre-service and in-service teacher education? In preparing this chapter, we examined the assignment descriptions, formal and informal feedback we

received from pre-service and in-service teachers, and insights stemming from our journals and recorded conversations. We first describe each assignment and then draw upon a thematic analysis to identify salient responses from teachers (including resistance and engagement), as well as to problematize actions we took and actions we would like to take in future as we implement subsequent versions of these assignments.

Critical Pedagogy and Critical (Language) Teacher Education

Though critical pedagogy has been enacted in various teacher education contexts in Canada (e.g., Clarke & Morgan, 2011) and internationally (e.g., Tarozzi, 2014; Zeichner, 2011), language teacher education has been very slow to theorize and enact critical perspectives (Ahmadian & Rad, 2014; Crookes & Lehner, 1998; Hawkins, 2011). Rather, transmission-oriented models focused on the discrete and unproblematized teaching of skills have prevailed in language teacher education. As Kumaravadivelu (2012) warns,

> Merely tinkering with the existing system of language teacher education will not suffice to meet the challenges posed by accelerating economic, cultural, and educational globalization. . . . What is surely and sorely needed is no less than a radical restructuring of language teacher education. (p. x)

A review of relevant literature reveals that many "social justice" orientations currently espoused in fact serve to perpetuate the status quo. As Hawkins (2011) notes, "the language teacher education literature primarily falls into two distinct categories: (1) scholars and educators who focus on issues of language, including, grammar, function, structure, and usage; and (2) those who focus on culturally and linguistically responsive pedagogies" (p. 1). Despite the trajectory of language teacher education having evolved into "a view of situated language that is shaped through pervasive social, cultural and political ideologies and forces that serve to empower some people while marginalizing others" (Hawkins, 2011, p. 2), Giroux's (2004) concern remains salient that

> educators face the challenge posed by the failure of existing critical discourses to bridge the gap between how society represents itself and how and why individuals fail to understand and critically engage such representations in order to intervene in the oppressive social relationships they often legitimate. (p. 19)

Our collaborative efforts to radicalize our teacher education practices are premised on the argument that "social justice" has become a buzzword whose central tenets and potential impact have been co-opted and distorted by neoliberal agendas in the university settings and schooling contexts in which teachers are prepared. Teachers require not merely the ability to use the language of inclusion in professional and academic discourse, but a genuine capacity to question their own privilege, understand the complex and intersecting issues their students face, and respond proactively with creative pedagogical approaches: for example, affirming the use of multiple languages and cultural worldviews in the classroom.

In order to challenge the status quo, our critical teacher education efforts pertain not only to issues of immigrant and refugee students but also to Indigenous issues. The Truth and Reconciliation Commission (TRC, 2015) deliberately avoided making recommendations and instead issued "calls to action" as a means of implicating all Canadians in the lengthy and complex process of reconciliation, which has profound implications for the capacities that teachers require. The TRC makes clear that purposeful action rather than "neutrality" is what is most needed at this time. Therefore, teachers require both examples of what action-oriented pedagogy looks like and opportunities to recognize and challenge inequities. Such capacities, however, can be challenging to develop. Indeed, redressing the systemic inequities experienced by diverse student and teacher populations represents the singular biggest challenge facing international education systems today. Diversity is defined broadly here to include culture, ethnicity, language, socioeconomic differences, gender, sexual orientation, ability, and religion. As leading critical literacy theorists have emphasized,

> The most durable and robust problem facing education research since the mid–20th century is the persistence of educational inequality. Under new economic, technological, and cultural conditions, increasingly diverse populations and communities are facing

> persistent and emergent patterns of educational inclusion and exclusion. How we name and describe, document and understand educational equality and inequality, inclusion and exclusion, centrality and marginality, then, is *the* issue facing educational systems in economically hard times. (Luke, Green, & Kelly, 2010, p. vii, italics in original)

Critical Assignments in Language and Literacy Teacher Education

A central part of addressing inequities in education lies in ensuring that teachers have the capacities to confront and address systemic discrimination, requiring a robust critical pedagogy. Yet attempts to prepare critically conscious and culturally responsive educators have had limited success, even when equity has been a focus in teacher education admissions and curriculum (Baxan, 2015). Teacher candidates' lived experiences prior to entering teacher education profoundly shape their ability to challenge inequities and can thwart their willingness to take up the challenge even when "social justice" content is infused in their teacher preparation experiences (Baxan, 2015). Further, critical scholars have asserted the insufficiency of simply raising teacher candidates' awareness of key issues of systemic inequity (Giroux, 2004). Superficially engaging with diversity issues in this manner can result in teacher candidates simply regurgitating the language of social justice without a commitment to enacting it and may problematically serve to reinforce discriminatory beliefs on the part of teacher candidates (Solomon, Portelli, Daniel, & Campbell, 2005).

As part of our 3-year critical action research project, we have begun to refine previously used assignments and explore new types of assignments in our practice with pre-service and in-service language and literacy teachers, in an effort to embrace a radical teacher education paradigm in a more cognizant manner. Our goal is to develop teachers' capacities to recognize and challenge inequities in schools and societies. The assignments we have employed to develop those capacities include a critical analysis of curriculum policy documents, a duoethnographic experience to explore aspects of diversity, a critical media assignment analyzing the voices of EAL learners and refugees, and a critical analysis of archival data from the National Centre for Truth and Reconciliation (NCTR) database. We use

intersectionality—defined by Hankivsky (2012) as "an understanding of human beings as shaped by the interaction of different social locations (e.g., 'race'/ethnicity, Indigeneity, gender, class, sexuality, geography, age, disability/ability, migration status, religion)" (p. 2)—as a theoretical lens to inform insights emerging from the initial implementation of each assignment. As Hankivsky (2012) notes, "these interactions occur within a context of connected systems and structures of power (e.g., laws, policies, state governments and other political and economic unions, religious institutions, media)," and serve to perpetuate "interdependent forms of privilege and oppression shaped by colonialism, imperialism, racism, homophobia, ableism and patriarchy" (p. 2). We have found this model a helpful lens both for raising teachers' awareness of the complexity of intersecting issues affecting their students, and as an analytical tool for considering our teacher education practice and the extent to which we challenge multiple modes of oppression in the materials, activities, and discussions we use in our classes.

Critical Comparative Analysis of Two Generations of Curriculum Policy Documents

Description

Teacher candidates (TCs) work with a partner to compare a current curriculum policy document with one in the same language or literacy subject area from 10 or more years earlier. TCs employ the basic tenets of critical discourse analysis to compare key features of the two generations of curriculum documents by responding to the following questions which also require TCs to consider how they will use the current curriculum document to meet the diverse needs of their future students. TCs are encouraged to initially respond to the questions in tabular form to get a clear sense of the similarities and differences between the two documents.

The guiding questions include:

How are the students referred to? For example, in ESL curriculum documents from the early 2000s, students were referred to as ESL students whereas in current documents, students are often referred to as ELLs - English language learners and the curriculum itself may be referenced as the EAL – English as an Additional Language curriculum.

What is the significance of the shift in how the students and the curriculum are named?

Which core elements appear in the curriculum documents from each generation? For example, in every current Ontario curriculum document there is section related to inclusive education and the infusion of technology which was not the case in earlier versions of these curriculum documents.

What is the significance of the change in the core elements of curriculum documents?

What approaches to learning and teaching language are advocated in each document?

What is the significance of changes in the pedagogy advocated in earlier and current versions of curriculum documents?

What skills, attitudes, competencies, and knowledge do the learning outcomes emphasize in each document?

Are there differences in the language used to describe learning outcomes in earlier and current versions of curriculum document?

Are there differences in terms of the actual learning outcomes specified?

Are there any outcomes you think should be included that are missing from the current documents?

How do you anticipate making use of the current curriculum document in your teaching?

What aspects of the document are most useful in your opinion?

Are there any aspects that you find problematic?

How might the curriculum document be improved from your perspective as a future classroom teacher?

The critical comparative curriculum reviews are evaluated on the basis of completeness (did students address all components/questions?), well-articulated comparative perspectives that use appropriate

evidence from the documents; the quality of the critical stance; sound connections to professional practice; and clarity/conciseness of communication.

Emerging Insights

Some TCs expressed concern about spending time looking at previous iterations of curriculum documents related to their teaching subject specialization and adopting a critical stance. They generally understood the need to become familiar with current curriculum documents, as these are related to the standards of professional practice for teachers. However, several said they did not want to "waste time" on a critical comparison when there were so many "practical" aspects of teaching they felt they needed to master. Such a view aligns with Hawkins' (2011) observation that the technical dimensions of language teaching can sometimes be at odds with a focus on sociopolitical issues in language teacher education.

The TCs clearly felt the need to follow the curriculum policy documents that pertained to their teaching subjects but resisted the notion of becoming interpreters of the curriculum. In this way, our use of an intersectionality lens was met with limited success. We were attempting to show that "inequities are never the result of single, distinct factors. Rather, they are the outcome of intersections of different social locations, power relations and experiences" (Hankivsky, 2012, p. 2). However, with the compressed and compartmentalized nature of our teacher education programs, there is pressure on teacher educators to make every class activity and assignment as directly relevant to the teaching positions our TCs are likely to assume. We were able to negotiate these expectations by sometimes meeting them and sometimes deliberately challenging them.

In future iterations, we intend to modify this assignment and transform it into a three-part in-class activity in which the first part would involve a short introduction to the basic tenets of critical

discourse analysis, as well as the intersectionality wheel developed by the Canadian Research Institute for the Advancement of Women (2009), showing connections between individual identities and societal forces and forms of discrimination. The second stage would involve small group work using the guiding questions and electronic copies of the two generations of curriculum documents. Finally, the third phase would involve taking up the activity as a whole class and working together to create a comprehensive table highlighting the similarities and differences between the two documents while discussing the nature and reasons for the changes while referencing the intersectionality wheel.

We believe that our initial assignment structure might be more suitable within the framework of a graduate course rather than within an initial teacher education course where the teacher candidates need more scaffolding on their journey to becoming more critically aware of the curriculum policy documents that shape their teaching.

A Critical Media Assignment Analyzing the Voices of EAL Learners and Refugees

Description

During the 1st month of class teacher candidates engage with various videos and learner narratives (including videos and short documentaries of Syrian refugees in camps in Lebanon and Jordan; videos from the Diversity in Teaching website: https://wordpress.oise.utoronto.ca/diversityinteaching/; and refugee learner narratives from the Manitoba Education and Advanced Learning (2015) *Building Hope* resources). TCs are then required to prepare a 3–5 page "issues paper" addressing the following questions:

> What were some of the experiences shared by the EAL learners and families that most resonated with you and why?

> Are you aware of any other compelling stories of EAL learners and families from your practicum?
>
> What do you see as the greatest challenges facing EAL learners and families in Canadian schools?
>
> How can understanding the experiences of EAL learners and families inform educational programs and policies and why is this important?
>
> What insights from these videos and resources will inform your own teaching (including not only your classroom practices, but your philosophy, your work with families, and your extracurricular/community engagement)?

Assignments are evaluated on the basis of five elements: completeness; well-articulated perspectives that use appropriate evidence from the videos and narratives; the quality of the critical stance; sound connections to professional practice; and clarity/conciseness of communication.

Emerging Insights

The videos and narratives that were shared in class and that provided the "voices" TCs were required to include in their assignments clearly made an impact at the time of viewing, as judged by the strong reactions and comments in the post-viewing debriefing. Many TCs expressed surprise regarding conditions of life in refugee camps, and the daily struggle EAL learners reported in negotiating social and academic tasks at school: for example, with respect to group work, which they often felt excluded from.

The subsequent written assignments generated by the TCs reflected a wide range of perspectives. Some demonstrated outstanding critical engagement with concepts of intersectionality, privilege, and the need for systemic change to respond more appropriately to immigrant and refugee learners and their families. These exceptional assignments drew extensively on examples from the videos and narratives to convey an empathy and sensitivity towards EAL learners and families, while maintaining high standards and expectations for these learners. Further, they avoided an essentializing discourse around "victimhood," an identity that none of the learners or families embodied in spite of their reported

hardships. These assignments also included concrete examples of how the TCs sought to challenge the status quo in schools and enact a socially just practice (Kumaravadivelu, 2012).

Other assignments fell short of reflecting appropriate or in-depth understandings of EAL learners and families, and did not refer extensively (or in some cases, at all) to the video and print resources viewed and debriefed extensively in class. Rather than using the EAL learner and family "voices" as evidence from which to draw insights, these assignments reflected pre-conceived ideas TCs had about language learners and refugees. In some cases, assignments reflected problematic stereotypes (e.g., "poor," uneducated refugees who are lucky and thankful to be coming to Canada) and myths about language learning (e.g., children learn languages better than adults, so EAL children can be easily integrated into mainstream classes with little support). We responded to these more problematic assignments with a combination of a) grades that reflected the lack of criticality and inclusion of learner and family voices, b) extensive detailed feedback on individual assignments, and c) taking up of some of the most problematic claims as a whole class in a detailed discussion and debriefing. This multi-pronged feedback was a deliberate attempt "to intervene in the oppressive social relationships [individuals] often legitimate" (Giroux, 2004, p. 19).

A Duoethnographic Experience to Explore Aspects of Diversity

Description

As duoethnographers ourselves, we have experienced the power of duoethnography, which "challenges and potentially disrupts the metanarrative of self at the personal level by questioning held beliefs" (Sawyer & Norris, 2012, p. 15) through dialogue between two researchers who bring their different vantage points to bear on the analysis of the issue at hand. As such, we have been exploring ways to adapt this innovative approach to research as a transformative strategy within the framework

of our teacher education programs, aligning with our institutions' focus on enhancing undergraduate research capacity. We discovered a duoethnographic assignment outline that Brown, a professor at Brock University, had used with her health education teacher candidates and were inspired to develop an assignment for teacher candidates learning to support the English language learners in their mainstream classes using a similar approach.

Our duoethnographic assignment includes several stages which take place in and outside of class. To introduce the assignment, we share our experiences with duoethnography as well as our duoethnographic publications and the multiple conversations and e-mail or document exchanges on which they were based. We then use the intersectionality wheel (Canadian Research Institute for the Advancement of Women, 2009) to help our teacher candidates see the interaction between their own identity markers and the larger forces of society (see Figure 1). We also provide the rationale for the assignment by referencing the key role of knowledge of self in the knowledge base for teachers (Kumaravadivelu, 2012).

After a "step inside the circle" activity to allow students to get to know each other, we ask them to pair up with a person as different as possible in a number of ways, while ensuring that each pair has a certain level of comfort as they move into the next stage of the assignment.

We provide a series of questions related to linguistic identity, as well as language and literacy learning, teaching, and daily use, for each pair to consider during a 1-hour face-to-face or Skype conversation that pairs are required to record. Some examples of the questions include:

- How would you describe yourself and why? Unilingual, bilingual, multilingual, plurilingual?
- Which language(s) do you use for which purposes?
- Do you have a dominant language? Is there a language which you prefer using? Is there a language that makes you feel more like your true self?

- What skills do you possess in your mother tongue and any other languages you know?
- What are your fondest classroom memories that involved a language learning or literacy focus?
- Are there particular teachers who stand out as helping your language learning or literacy development journey?
- Are there any classroom activities involving language learning or literacy development that you recall having a particular dislike for? With what you currently know about language learning or literacy development, what might you do differently?

Then, individually, each student attempts to summarize the conversation while electing to transcribe certain parts of the conversation deemed to be particularly important or meaningful. In class the pairs integrate their summaries, as well as the passages they decided to transcribe, and then organize them around two to three key themes.

The following phase takes place outside of class when pairs use various collaborative writing strategies to create three brief conversations with an introduction and connections to some of the research literature they have been exploring in the teacher education program. The last part of each duoethnography is a short dialogic reflection on the experience of completing this type of assignment.

Finally, each pair is invited to post their duoethnography online in the course forum. Then each teacher candidate is invited to read three duoethnographies before a final whole class discussion to consider the implications of the duoethnographies for teaching and supporting English language learners in mainstream classrooms, as well as the interconnections between a teacher or student's unique circumstances and larger societal forces.

Emerging Insights

Teacher candidates' critical awareness was generally enhanced by completing this assignment and some noted deeper and more nuanced understanding of the ways intersections of diversity shape

people's lives and social and educational opportunities. Some of the variability in the way teacher candidates responded to this assignment could be attributed to their disciplinary background, as well as the level they were preparing to teach. Future elementary school teachers reported being more comfortable with the dialogic nature of the assignment, while some teacher candidates who came with an undergraduate degree in science, engineering, or mathematics commented on their feelings of discomfort with such an open-ended process. Yet, discomfort as a learning tool is an essential aspect of a radical pedagogy (Solomon et al., 2005).

Teacher candidates discovered the power of dialogue in deepening their self-knowledge. Particularly appreciated was the change of pace that the duoethnographic assignment provided within an overcrowded teacher education curriculum where certain types of assignments appear repeatedly in different courses. The depth of learning was further evidenced by the connections teacher candidates were able to make between their personal experiences and the ways they could support ELLs in the mainstream classroom. In addition, TCs demonstrated an openness to learning more about the interconnections between a teacher or student's unique circumstances and larger societal forces.

A Critical Analysis of Archival Data From the National Centre for Truth and Reconciliation (NCTR) Database

Description

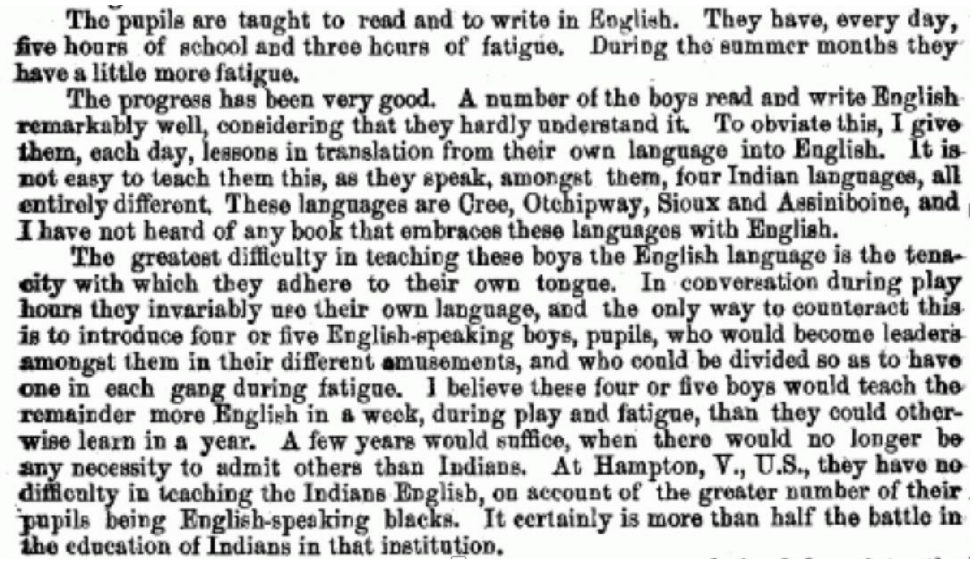
Teacher candidates or graduate students undertake an inquiry project drawing on archival data from the National Centre for Truth and Reconciliation (NCTR) database guided by the following questions:

> How can insights from NCTR archives pertaining to language issues inform the current research and practice of language educators?

What lessons can be learned from the archival data about conducting research with culturally and linguistically diverse populations?

Although archival data is analyzed in class, students are encouraged to explore the NCTR database (see Figure 3 and http://umanitoba.ca/nctr/) in more detail and add to the files we have already found for use in class.

Graduate students or TCs are asked to identity two or three issues of interest stemming from their work with the archival data and prepare a Language Issues in Residential Schools paper in response to the two general questions noted above.



The pupils are taught to read and to write in English. They have, every day, five hours of school and three hours of fatigue. During the summer months they have a little more fatigue.

The progress has been very good. A number of the boys read and write English remarkably well, considering that they hardly understand it. To obviate this, I give them, each day, lessons in translation from their own language into English. It is not easy to teach them this, as they speak, amongst them, four Indian languages, all entirely different. These languages are Cree, Otchipway, Sioux and Assiniboine, and I have not heard of any book that embraces these languages with English.

The greatest difficulty in teaching these boys the English language is the tenacity with which they adhere to their own tongue. In conversation during play hours they invariably use their own language, and the only way to counteract this is to introduce four or five English-speaking boys, pupils, who would become leaders amongst them in their different amusements, and who could be divided so as to have one in each gang during fatigue. I believe these four or five boys would teach the remainder more English in a week, during play and fatigue, than they could otherwise learn in a year. A few years would suffice, when there would no longer be any necessity to admit others than Indians. At Hampton, V., U.S., they have no difficulty in teaching the Indians English, on account of the greater number of their pupils being English-speaking blacks. It certainly is more than half the battle in the education of Indians in that institution.

Figure 1: Sample archival document excerpt from an1885 Government of Canada Indian Affairs Report.

Emerging Insights

To prepare the graduate students or teacher candidates to engage meaningfully with the NCTR archives, we first read several critical academic papers on the history and legacy of residential schools

(e.g., Koostachin, 2012; Neeganagwedgin, 2014) and conducting archival research (e.g., Tesar, 2015). We then brainstormed some guidelines to help frame our subsequent inquiry. The intention here was to reflect Hankivsky's (2012) idea that "when analyzing social problems, the importance of any category or structure cannot be predetermined; the categories and their importance must be discovered in the process of investigation" (p.3). Nonetheless, it was important to keep certain ethical tenets in mind. Collaboratively, class members generated the following guidelines:

- Be aware of our own biases
- Suspend judgment
- Be mindful that texts are situated in particular time/places/sociopolitical contexts
- Represent findings with tentativeness
- Adopt a critical stance (e.g., be aware of the position of the speaker/writer, such as the assimilationist orientation of government and church authorities)

Overall the assignments reflected a highly critical stance, in which the devastating impact of the government-sponsored genocide of Indigenous peoples in Canada was robustly acknowledged and critiqued. Students focused their critique primarily on the cultural genocide involved in the rampant linguicism documented in the archives, and made salient connections to the ongoing linguicism evident in Canadian and international schools today. Such analysis reinforced Luke et al.'s (2010) message about the urgent need to name and overtly challenge educational inequities.

Conclusion

Some tensions arose in our work as we attempted to engage our students with a more radical teacher education pedagogy through a variety of critically-oriented assignments in initial teacher education and in graduate education programs. For example, it was not immediately apparent to some teacher candidates what the relevance was in examining historical patterns of hidden curriculum and the

ways in which immigrant and refugee EAL learners and indigenous students have been disadvantaged by the assimilationist orientation reflected therein. Moreover, our work to prioritize criticality has been constrained by institutional and systemic limitations, including the over-crowded curriculum of many teacher education programs and the prevailing beliefs of some teacher candidates that practicality trumps criticality.

Despite these pockets of resistance, there are nevertheless several indicators that many teacher candidates and graduate students in education are developing the capacities to identify and challenge educational inequities. Our students generally have responded favorably to scaffolded learning experiences and assignments that help them better understand the complex connections between aspects of identity and societal forces and ways of teaching that challenge the status quo. Particularly successful was the analysis of archival data from the Truth and Reconciliation database, which established relevant connections between the genocidal legacy of residential schools and contemporary concerns around the systemic delegitimizing of students' and families' languages and cultures in Canadian schools. Students articulated various ways that they could challenge such systemic oppression: for example, by validating the languages and cultures of their students in their classrooms.

As we continue to search for ways to infuse criticality into all aspects of our work with teacher candidates and graduate students, our focus is broadening, and we are exploring new and varied ways to support teacher candidates and graduate students in education in becoming critical action researchers seeking to effect change in their classrooms, schools, and communities.

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Chapter 20: Preparing for Linguistic Diversity: Teacher Candidate Reflections on an Elementary Education Course in Additional Language Teaching and Learning

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Abstract

Teacher candidates in Canada encounter a rich range of linguistic diversity in their school experiences. The goal of this qualitative study was to examine, from the point of view of elementary teacher candidates, the extent to which an additional language teaching and learning course prepared them for their encounters with students from linguistically diverse backgrounds. Data were gathered through an online open-ended questionnaire exploring teacher candidates' perspectives on the most and least beneficial elements of the course, along with what they thought might be missing. Results point to Canadian classrooms being home to a wide diversity of English language learners. Participants also felt that instructional strategies, empathy, confidence, and transferability were some of the benefits of a course in additional language teaching and learning. However, they felt that it lacked enough time with actual students and content related to culture, socioeconomic factors, and immigration status. The findings underscore the necessity of addressing the needs of English language learners from diverse linguistic backgrounds throughout a teacher education program and the importance of having a specialized course in additional language teaching and learning.

Preparing for Linguistic Diversity: Teacher Candidate Reflections on an Elementary Education Course in Additional Language Teaching and Learning

Teacher candidates in Canadian teacher education programs are sure to encounter students from diverse language backgrounds in their school and practicum experiences. For example, in British Columbia, about one in four public school students speak a language other than English in the home (British Columbia Teachers' Federation, 2012), and, of these students, approximately 62,000 were identified as English language learners (ELLs) in the 2011/2012 school year. In that same period, there were an additional 10,000 international students enrolled in British Columbia's K–12 public schools (British Columbia Teachers' Federation, 2012). However, many teacher candidates entering into teacher education programs may not have had much experience working with ELLs (Jurchan & Morano, 2010). Thus, teacher education programs are an important opportunity for teacher candidates to develop their capacities for working with ELLs (Hutchinson, 2013), with those capacities representing the knowledge, skills, and dispositions (Grant, 2008) that support ELLs' social, linguistic, and academic needs. In particular, subject area and generalist teacher candidates need to be prepared to support ELLs not only as they learn academic content and skills through English, but also as they develop their language abilities in English (Lucas, Villegas, Freedson-Gonzalez, 2008). These linguistic realities call for new teachers to extend their capacities to serve an increasingly diverse student population, with teacher education coursework the prime location to develop those capacities.

In British Columbia, the importance of the current research is underlined by the fact that teacher education programs are required by the provincial Teacher Regulation Branch to "have content which recognizes the diverse nature of our society and which addresses through the program philosophical, ethical, and societal concerns with specific attention to . . . English as a Second Language (ESL) . . ."

(British Columbia Ministry of Education, n.d., p. 32). While teacher education programs may include coursework related to additional language teaching and learning (ALTL), the extent to which teacher education programs provide what teacher candidates need to work with ELLs is not well known. Thus, it is important to "identify areas of mismatch between program preparation and current workplace demands" (Baecher, 2012, p. 579). It may be the case that teacher educators have varying levels of success preparing teacher candidates to work with students from language and culture backgrounds different from their own (Brock, Case, & Taylor, 2013).

The goal of this qualitative exploratory study was to examine, from the point of view of teacher candidates reflecting back on their experiences in their 2-year BEd program, the extent to which a 1st-year elementary ALTL course prepared them for their encounters with linguistically diverse learners during their initial school experiences. Results point to the wide range of language backgrounds and proficiency levels of ELLs. The results further point to the benefits participants perceived from gaining new instructional strategies, increasing empathy, becoming more confident, and identifying the transferability of new knowledge. However, participants did indicate that more time working with ELLs in elementary settings and further education in the teaching of students with diverse cultural and refugee backgrounds would have better readied them for their school experiences.

Teacher Education for Linguistically Diverse Classrooms

Culturally and Linguistically Responsive Pedagogy

A theoretical framework grounded in culturally and linguistically responsive education can guide inquiry into teacher candidate perceptions of their preparation to meet the needs of ELLs from diverse linguistic backgrounds. Culturally responsive pedagogy supports students by welcoming their lived experiences, knowledge, and backgrounds into classroom teaching and learning (Gay, 2010). In addition

to nurturing and supporting cultural understanding, culturally responsive pedagogy further promotes academic development and the development of a critical social and political consciousness (Ladson-Billings, 1995). Culturally responsive educators have an understanding that their own ways of thinking are not shared by everyone and that their particular understandings of the world are shaped by their own lived experiences, which have been influenced by factors such as class, gender, and ethnic background (Villegas & Lucas, 2002). As a result, students' cultural backgrounds, knowledge of the world, and individual perspectives are actively related to the curriculum (Villegas & Lucas, 2002). To achieve this connection between students and classroom educational practices and academic goals, Villegas and Lucas (2002) proposed that culturally responsive teachers strive to understand their own sociocultural backgrounds, learn more about their students' backgrounds, respect diversity, honour students' prior knowledge and how they learn, realize differences can be strengths, promote learning for all students, enact positive change in their instructional practices, and promote equity in their schools and communities.

Arising out of a culturally responsive pedagogy framework, linguistically responsive pedagogy embraces students' linguistically diverse backgrounds, varying language abilities and practices, and linguistic needs (Rao & Morales, 2015). For Lucas & Villegas (2011), linguistically responsive pedagogy and culturally responsive pedagogy are related. Linguistically responsive teachers view linguistic diversity positively and respect the language backgrounds of their students. They understand the language demands of studying in an additional language, and they are able to implement additional language teaching and learning instructional practices that support students from linguistically diverse backgrounds reaching their social and academic goals while learning language and content. Lucas et al. (2008) have identified that linguistically responsive teachers understand the difference between conversational and academic language proficiency, the importance of comprehensible input and

producing meaningful output, the need for social interaction, the value of strong first language skills, the role of a warm and welcoming classroom environment, and the role of paying attention to language form and function. Furthermore, linguistically responsive pedagogy is characterized by a strong knowledge of ELLs and their varying backgrounds, the linguistic demands of various educational activities, and effective scaffolding practices that support accessing curriculum content (Lucas et al., 2008). To prepare teacher candidates to meet the needs of ELLs within a culturally and linguistically responsive pedagogy framework, carefully chosen teacher education program content aligned with structured interactions with ELLs has the potential to impact preconceived notions relating to linguistic diversity and additional language acquisition to the benefit of all learners.

Additional Language Teaching and Learning Course Content

All teacher candidates, regardless of their subject specialties, need to engage with information about additional language acquisition and strategies for differentiating instruction (Hutchinson, 2013). To carry out this engagement, Faez (2011) has promoted a sociocultural understanding of teacher education that advocates the co-construction of knowledge over the mastering of a set of skills. For Faez, this sociocultural framework involves teacher educators taking the time to find out about the linguistic, cultural, and life experience backgrounds of teacher candidates while fostering their sensitivity to the diverse and varying contexts they will encounter during their teaching practice. In fostering this sensitivity, a sociocultural framework can involve garnering an understanding of the funds of knowledge (Moll, Amanti, Neff, & Gonzalez, 1992) students from diverse cultural and linguistic backgrounds bring with them to the learning experience. ELLs have rich cultural and cognitive resources that can positively impact the classroom. Teacher education that combines content, such as an exploration of the knowledge and skills ELLs bring with them, with interactive strategies, such as case

study projects (Jurchan & Morano, 2010) and community service learning projects (Pappamihiel, 2007), to actively engage in that content can lead to teacher candidates having increasing levels of ability for working with ELLs (Jimenez-Silva, Olson, & Hernandez, 2012). Although it may be challenging for teacher candidates, preparation to work with ELLs in special education, communicate with parents of ELLs, support varying language and academic skills, prepare content-based lessons, and engage in testing and evaluation are all topics that can be included in teacher education (Baecher, 2012).

As mentioned, an important component of preparing teacher candidates for linguistically diverse classrooms is experience working with ELLs and the educators who teach ELLs (Hutchinson, 2013). A course including interaction with ELLs is fundamental for making connections between the course content and real additional language learning (Busch, 2010). Jurchan and Marano (2010) have proposed that this experience of working with ELLs can be introduced gradually to teacher candidates, with the positive effect of lowering teacher candidates' fear and anxiety connected to teaching this profile of learner, while preparing them to support the emotional and academic needs of ELLs. For Jurchan and Marano, the gradual introduction to working with ELLs took the form of a case study project in which teacher candidates worked with an ELL as a tutor for 20–35 hours under the direction of the classroom teacher. This project allowed teacher candidates to transfer their theoretical knowledge to a practical application in a K–12 classroom, and it helped teacher candidates have a greater sense of who they were becoming as teachers of students from linguistically diverse backgrounds.

Changing Beliefs

Although they might not be able to express them clearly, teacher candidates come into teacher education programs with their own preconceived beliefs about teaching and learning. These beliefs, which influence behaviour and help people organize knowledge to explain and understand the world

around them, are based on the extent to which they see something as being true or not (Pajares, 1992). These beliefs can be quite strong because of all of the years teacher candidates have spent observing educational practices in schools as students themselves (Lortie, 1975), and teacher candidates' beliefs are usually well established by the time they arrive in their teacher education programs (Pajares, 1992).

Holingsworth (1989) has pointed out that understanding the prior beliefs of teacher candidates is important for designing pre-service teacher education courses. For Holingsworth, learning to teach is a dynamic process in which teacher candidates' previously held beliefs play an important role. Teacher candidates use their prior beliefs as a tool for understanding their pre-service program content and classroom experiences. The beliefs teacher candidates bring with them can influence how they interpret what they encounter in their teacher education programs (Holingsworth, 1989). In particular, these beliefs and experiences can combine with peer interactions, textbooks, lectures, and school experiences to influence how teacher candidates think about ALTL (Fleming, Bangou, and Fellus, 2011). Coursework related to teaching in ethnically, culturally, and linguistically diverse classroom may be challenging for teacher candidates because of their previously held beliefs. These topics may be seen as controversial, and teacher educators may meet resistance in their programs of instruction (Faez, 2012). This resistance may manifest because beliefs that are formed early in a person's life are difficult to change, and discussion analyzing notions that teacher candidates believe in the most may not be a comfortable process. In general, it is rare for adults to change their beliefs, and, even when a discussion related to deeply held beliefs takes place, people typically do not change those beliefs until they prove to be unsatisfactory to the holders (Pajares, 1992).

Despite these difficulties, teacher candidates need experiences that help them to "confront and understand their attitudes and assumptions about working with culturally and linguistically diverse learners" (Hutchinson, 2013, p. 47). If teacher candidates come into the classroom with negative

opinions regarding ELLs, this can impact the educational experiences of linguistically diverse students (Hutchinson, 2013). When underlying teacher candidate beliefs and understandings are not addressed, there is the possibility that what teacher candidates study and learn in a teacher education program and what they may actually carry out during their school experiences may differ, with teacher candidates relying on their own preconceived beliefs related to cultural and linguistic diversity (Brock et al., 2013). To counteract this possibility, courses related to teaching students from linguistically diverse backgrounds can provide teacher candidates with the opportunity to examine their beliefs, see where their beliefs come from, and experience course content that confronts preconceptions and promotes new understandings (Markos, 2012). In terms of specific content, courses in ALTL can include readings, reflections, scenarios, linguistically diverse school experiences, and examples from personal experience to offset resistance teacher educators might encounter as they are working with teacher candidates to examine their underlying assumptions and prior beliefs (Faez, 2012).

Despite the challenges related to having an impact on deeply held notions, a course in ALTL can positively affect teacher candidates' beliefs related to ELLs. While strongly held and resistant to change, beliefs are not necessarily fixed, and there is evidence that teacher candidates can acquire new theories and teaching methods (Hollingsworth, 1989). For example, Busch (2010) found that, at first, teacher candidates relied on their own language learning experiences to formulate their beliefs related to teaching ELLs, and they may have held certain misconceptions about learning an additional language. However, these beliefs evolved as a result of the content and activities undertaken during the course. For example, Busch found that teacher candidates beliefs changed regarding the amount of time it takes to learn an additional language, the necessity of knowing about English-speaking cultures, and the role of vocabulary and grammar in language learning. Jurchan and Morano (2010) also noted changes in teacher candidates' beliefs regarding ALTL and found that one-on-one tutoring with ELLs as part of a

case study project during a teacher education program can lead to "transformational shifts in the candidates' perspectives as they learned about the theory, understood the application, and discovered who they were becoming as teachers" (p. 82).

Increasing Empathy

Teacher candidates also appear to gain greater empathy for ELLs because of coursework in ALTL. Empathy is not the same as sympathy. Empathy has positive connotations and involves being open to new situations and starting to understand and feel the emotions of another person, whereas sympathy implies relating to a situation perceived as negative (Dewaele & Wei, 2012; Gladkova, 2010). Furthermore, empathy is different than having a saviour mentality in which teacher candidates, as a result of their privileged backgrounds, might believe they are experts with a distinctive and inherent ability to overcome challenges while empowering, enriching, and educating students whom they perceive as disadvantaged (Straubhaar, 2015). A true sense of empathy can facilitate cultural understanding (Washburn, 2008). When teachers have an empathy for students that respects them and their cultures, students will have a better chance of meeting their academic goals and growing their sense of self-respect (Delpit, 2006). Empathy can help teacher candidates understand the challenges ELLs may face, while knowing these challenges may be overcome with time (Zhang & Pelttari, 2014).

Zhang and Pelttari (2014) have maintained that teacher candidates need to undergo language learning opportunities that have them experience the realities that ELLs experience. To create this scenario, Zhang and Pelttari immersed teacher candidates in a lesson delivered in the Dutch language to foster in the teacher candidates the mixed emotions that ELLs may experience. After the experience, teacher candidates remarked on the effort required for learning an additional language and appeared to have gained greater empathy for ELLs, which in turn could support the teacher candidates working

towards culturally responsive curriculum and instruction. After exploring additional language learning as part of their teacher education, Cho, Rios, Trent, and Mayfield (2012) found that teacher candidates could move away from simplistic understandings about how languages were learned and move towards a more sophisticated appreciation of language learning that took a variety of factors into account. Teacher candidates also felt greater responsibility for ELLs, more open to language diversity, and increased positivity about curriculum that affirmed the language, culture, and instructional needs of ELLs.

Experiencing coursework in ALTL appears to have a transformative effect on deficit thinking, with teacher candidates moving towards seeing strengths rather than deficits in their learners. After a course in ALTL that included a community-based service learning component in which teacher candidates tutored ELLs for 10 hours and kept a reflective journal documenting the experience, Pappamihiel (2007) found that teacher candidates seemed to change their thinking about immigrants and ELLs in schools in a positive way. In particular, Pappamihiel noted that the teacher candidates in her study started to move away from ethnocentric understandings towards appreciating cultural differences and the positive aspects of working with ELLs. Markos (2012) found that although teacher candidates may begin with deficit and narrow understandings of ELLs, teacher education can provide a place for the examination of prior beliefs, attitudes, and thoughts related to ELLs in which new stories can be offered to challenge deficit perceptions. Markos provided a place for the examination of prior beliefs through a series of inquiry questions she posed to teacher candidates throughout her course. These inquiry questions helped teacher candidates identify their beliefs and how they evolved over the course. What might start out as narrow fluency-based deficit understandings of ELLs, after ALTL coursework, might become broader understandings and acceptance of ELLs. Teacher candidates may initially see language learners as responsible for their own language learning, but ALTL coursework can play an

important role in changing these types of negative beliefs to positive capacities to support ELLs' access to and success in content courses (DelliCarpini & Alonso, 2014). Hutchinson (2013) also found similar results, with negative attitudes teacher candidates may have had about ELLs being confronted and addressed in their coursework and not being taken into the classroom. Teacher candidates were able to gain an appreciation of how to support ELLs and the challenges they may face.

Increasing Confidence

Teacher education can strive to foster the confidence of teacher candidates to teach students from diverse cultural and linguistic backgrounds (Jimenez-Silva et al., 2012). However, teacher candidates aiming to become subject area teachers might perceive their readiness, preparation, and competence for supporting the language and academic needs of ELLs in their classrooms as lacking (Polat, 2010). Teacher candidates are apt to feel anxious when thinking about teaching in linguistically diverse classrooms because of the multiple perceived needs of ELLs, and they may feel challenged by teaching in multilingual classrooms (Jurchan and Morano, 2010). However, Pappmihiel (2007) found, with coursework in ALTL as a starting point for preparing teacher candidates, teacher candidates seemed to have an increased sense of confidence, and began to see themselves as content teachers and English language teachers. Teacher candidates began to see ELLs as individuals and thought about instructional strategies that would help students from linguistically diverse backgrounds in their classrooms.

Research Question

The overarching research question guiding this inquiry is grounded in the point of view of teacher candidates 1 year after taking an elementary ALTL course. Within a qualitative research

framework, this study seeks to understand participants' perspectives on the course as a means for preparing them for their roles as teachers in linguistically diverse classrooms. The question is as follows:

> What are the participants' perspectives on the various elements of an elementary additional language teaching and learning course in relation to preparing teacher candidates to meet the needs of learners from diverse linguistic backgrounds?

The Study

A Course in Elementary ALTL

The research context for the current study is an elementary teacher education program at a research intensive university in the British Columbia interior. In the surrounding area where teacher candidates may have their school experiences, the numbers of designated ELLs in schools are small compared to the rest of the province, with approximately 340 domestic ELLs and 263 international students out of a total K–12 school population of just under 22,000 learners (School District No. 23, 2015). However, these small numbers represent an increasing population of domestic and international students from non-English speaking backgrounds. It is likely that teacher candidates will encounter linguistically diverse students during their school visits and program practicums.

The elementary teacher education program is a 2-year program consisting of 4 semesters (with a 4 month summer break between the 2 years), with courses covering content disciplines, foundational theories, and professional practice along with school-based experiences and 4 weeks of practicum in the 2nd semester of the 1st year and 8 weeks of practicum in the 2nd semester of the 2nd year. In the first shorter practicum, teacher candidates move from teaching 20% of the day in Week 1 to teaching 40% of the day in Week 4. In the second longer practicum, teacher candidates move from teaching 30% in Week 1 to teaching 80% of the day by Week 3 onwards. At the time of the questionnaire, teacher

candidates had not yet begun their 8-week long practicum placements in the 2nd semester of their 2nd year of studies; however, they had experienced a variety of school visits. For example, in addition to completing their initial 4-week practicum placement (after the elementary ALTL course), teacher candidates were in schools 1 day a week exploring the topic of professional practice in the classroom.

The elementary ALTL course that is the subject of this study was situated in the 1st semester of the 1st year of the program, in conjunction with drama, technology, and physical education. Each of these four disciplines represented 2 credits of study (24 hours) for a total of 8 credits (96 hours). For each of the courses, teacher candidates met once a week for 2 hours over the course of 12 weeks. For the most part, the four subjects were taught separately until the end of the semester when teacher candidates came together to complete a final integrated project, worth 50% of their final grade, involving providing a learning experience for students, including ELLs, at a local elementary school.

The goal of the 2 credit ALTL course was to introduce teacher candidates to a wide range of instructional strategies connected to ALTL, including an examination of teaching in multilingual contexts and the core concepts associated with working with students from linguistically diverse backgrounds. Teacher candidates engaged in the examination of inclusive classrooms, supportive instructional strategies, illustrative case studies, and effective additional language teaching methods. Two sections of the course were offered in the fall 2014 semester, with a total of 61 teacher candidates enrolled across both sections.

One of the major projects completed by teacher candidates during the elementary ALTL course was facilitating a language teaching methods workshop so that the class could experience being additional language learners. This project was worth 35% of teacher candidates' final evaluation in the course. Teacher candidates created a 20-minute learning experience for the class demonstrating a language teaching method such as communicative language teaching, task-based language teaching, or

content-based instruction. While the presenters were facilitating the workshop, the rest of the class took on the role of language learners. Teacher candidates had the option of demonstrating their chosen language teaching method in English or another language. The workshops included experiences in a variety of languages, such as Hebrew, French, German, Punjabi, Chinese, and English. The learning experiences were accompanied by a class discussion facilitated by the teacher candidates reflecting on the language learning experience.

Participants

After receiving approval from the researcher's institutional behavioural ethics board, participants were recruited from 2nd-year teacher candidates who had been enrolled in the 1st-year elementary ALTL course. The researcher had been the instructor for the elementary ALTL course. However, at the time of recruitment, the researcher was no longer an instructor of the potential participants. Out of the 61 2nd-year elementary teacher candidates who were enrolled in the elementary ALTL course in the year previous to the gathering of the data, 14 participants completed the online questionnaire, representing 23% of potential participants. In the study, 12 of the participants identified as female, and two of the participants identified as male; however, the results have been presented without specifically identifying the participants' gender identity. On average, the participants were 27 years old (*SD*=3.98).

Based on the participants' responses, teacher candidates in the study had a variety of elementary school experiences leading up to completing the online questionnaire. Experiences ranged from kindergarten to Grade 6 classrooms, with the majority of experiences taking place in Grades 1, 2, 3, and 4. Class sizes ranged from 19 to 30 students, with an average class size reported of 23 students (*SD*=3.41). Schools ranged in reported sizes from about 200 students to 500 students. Most of the schools described were located in suburban (seven) and urban areas (six), with schools also located in

smaller towns and cities (four). All of the schools were part of the public system, except for one private school located in a larger city.

Data Collection

Data collection was carried out through an online questionnaire via the researcher's university survey tool and distributed through e-mail to potential participants who had been enrolled in the elementary ALTL course. Two invitation e-mails were sent to potential participants 1 year after completing the course. After reading through the information on informed consent and clicking "yes" to indicate participants' willingness to take part in the study, there were eight open-ended questions on the questionnaire. The online questionnaire was designed to elicit participant reflections on the elements of the elementary ALTL course that related to their capacities to serve the needs of students in linguistically diverse classrooms. Questions from the online questionnaire are presented in the Appendix.

Data Analysis

This investigation employed qualitative research methods, and data gathered through the online questionnaire were analysed for thematic patterns arising out of the participant responses. Responses to the online questionnaire were read over multiple times and were first analysed for unique and significant units of meaning related to the elementary ALTL course and teacher candidates' preparedness for linguistically diverse classrooms (Creswell, 1998). These units of meaning were coded, reviewed multiple times to gather together similarly coded units of meaning, and categorized into emerging thematic patterns. The data analysis was inductive without pre-conceived codes or categories (Gay, Mills, & Airasian, 2012). Furthermore, the researcher made a concerted effort to bracket and put away

his own preconceived ideas around the elementary ALTL course so that the participants' own perspectives coalesced into the emerging themes (Creswell, 1998). Once the themes were established, representative quotes were used to report the findings, with a composite approach (Plews & Zhao, 2010) being employed that mixed the responses from different participants to illustrate the emergent themes.

Results

Encounters With Linguistic Diversity

Language background. Regarding the linguistic diversity encountered during the participants' school experiences, participants reported meeting students with a wide variety of language backgrounds. Particularly represented in the data were students from South Asian language backgrounds such as Punjabi, Bengali, Sinhalese, and Tamil. Participants also reported working with students from language backgrounds such as Chinese, Japanese, Korean, and Tagalog. Students from European and South American language backgrounds, such as Dutch, Russian, Ukrainian, Romanian, Portuguese, and Spanish were also found in the participants' schools along with a number of Arabic speaking students from countries in the Middle East, such as Syria. Madagascar, off the southeast coast of Africa, was also represented by a student from a Malagasy/French speaking background. Finally, in one school, a number of students spoke Carrier, a First Nations language, as their home language.

Language proficiency. When considering the English language proficiency of the students from linguistically diverse backgrounds encountered during the participants' school experiences, generally, it was reported that "their language abilities orally in English [were] good," with one student having "a language ability that . . . [seemed] indistinguishable from the non-ELL students in our class, including in conversation, listening, reading and writing." However, for most students, oral language skills were judged to be more developed than either reading or writing skills. One student appeared to have "mild

challenges in conversation, moderate challenges in reading, and severe challenges in writing." In another school "all of the ELLs in the school can speak English; however, some are struggling with reading and writing in English at grade level." This pattern was confirmed by other participants, with one student reported as having "strong oral language, but [being] below grade level, reading and writing," and two more students reported as being "both proficient in speaking English but [struggling] with writing and reading."

Language use. Home language use and school language use was another theme related to participants' encounters with linguistic diversity. Some of the participants noted where students were speaking which languages in the data. For example, it was noted that the students from Carrier speaking backgrounds spoke "English amongst their peers and teachers." Another participant reported that a "Korean student speaks English at home now and has great English," while a "Spanish student only moved to Canada a year ago and still speaks Spanish at home. Her English is emerging." Two more participants commented on students' home languages and school language by reporting "all these students are pretty proficient English speakers, but they speak another language at home," and "considering they speak their native languages at home, their English is excellent." Finally, participants were not always sure which students came from linguistically diverse backgrounds, with one candidate noting "one ELL student in my classroom from the Philippines," but he or she was "unsure how many other students are English Language Learners."

Reflecting on the Beneficial Elements of the Course

Instructional strategies. A prominent theme arising in the data was the benefits of exploring the use of a wide variety of instructional strategies for working with ELLs during the course. For one participant, the "course was extremely necessary, as the amount of ELL students is increasing and it is

helpful to have strategies and support to help these individual students in the classroom." Participants "really appreciated all the different strategies that were provided" and felt "learning about different strategies to use in the classroom with ELL students was very beneficial." In particular, one participant noted that she or he was "not aware that there were different strategies to teach language and that they looked so completely different." Thinking about instructional strategies for ELLs, another participant reported "I have been able to use many of these in my [first] practicum." Examples of instructional strategies and teaching methods useful for working with ELLs that were mentioned by the participants included, the "importance of putting words before symbols for students with little knowledge of the English language" and "the importance of using visuals [in] lessons for better student understanding." In general, using visuals and providing written instructions were considered positive instructional strategies, with "repetition and visual cues [being] extremely helpful for all students." The consensus in the data seemed to be that participants "took many strategies from this class . . . that [they] found useful in [their] teaching."

Empathy. Participants also seemed to gain more empathy for ELLs as a result of the elementary ALTL course, particularly because of the language teaching methods workshops that put teacher candidates into the role of both language teachers and language learners during the course. This learning experience generally was favourably reviewed by the participants, with one participant illustrating that opinion by stating "teaching our peers was valuable and memorable." Furthermore, the project appeared to foster feelings of empathy in the participants: "We spent a lot of time teaching and experiencing activities that put us in the shoes of an ELL, which really personalized my learning." Another participant also reported how the project fostered understanding on the part of ELLs: "I enjoyed the hands on learning about [language teaching methods] through presentations that allowed you to take the place of an ELL. This encouraged me to really think about the way I learn and how it would feel to be a student

who was being pushed to learn in only one way." These feelings of empathy and understanding were further illustrated by the response of a participant who wrote "we had positive, authentic emotional experiences in class connected to teaching ELL students," and another participant who bolstered this reflection by stating "this course has really helped me to be considerate and helpful to my ELL students." In total, the class experienced more than 10 different language teaching methods, and the experience helped teacher candidates "really think through the process and provided [them] with further teaching experience, which is always beneficial." Participants seemed to feel that teacher candidates were exposed to "different modes of instruction to teach language to young students" that was "very applicable."

Growth. It appeared that some participants also felt more prepared to work with ELLs after taking the course. One participant wrote that he or she had learned a lot in the course because "coming from a school that was predominately all English speakers, [she or he] had little interaction with ESL/ELL students and did not feel confident in teaching them." The topics covered during the course expanded the participants' previous life experiences. For example, for one participant "learning the difference between multicultural education and anti-racist education was valuable for me because my experience in school is that they were the same thing." Because of a lack of experience with linguistic diversity, some participants also may not have been sure of what to expect before the course: "When we first started the course, I was not quite sure as to what the point was." However, this participant's opinion changed on reflection: "Looking back, I am so excited that the education faculty values students of different cultures . . . to make sure these students can be included and taught in the best ways possible. . . . I feel more prepared as a teacher now." The impact of the course also seemed to have the potential to last longer than the course itself. Thinking about the beneficial elements of the course, a participant stated that the course "gave [her or him] a deeper understanding of what learning additional

languages means and how it works. It also gave [her or him] questions that [she or he] would not have thought about, which [she or he] can explore in [her or his] practicum experience. It appeared that the topics covered in the elementary ALTL course were "useful as well to go back to for reference."

Transferability. One participant enthusiastically reported that she or he "was really excited and impressed that we actually got to have a whole course on [ELL] students." However, it appeared in the data that the core concepts and instructional strategies explored in the elementary ALTL course also transferred to working with other students. Participants made connections that went beyond ELLs, with one participant stating that "these seminars really gave excellent examples about how to differentiate your teaching in ways that could really benefit all types of learners." It was felt that "best practice and good instruction works for all students," and the course provided "strategies that will be useful for all . . . students as most of the strategies can help any child learn better." It further emerged in the data that "the strategies you can apply would also be helpful for students with learning difficulties." Connections were made between the course on elementary ALTL and another course the participants took related to learning differences. It was felt that "the strategies were similar, and both courses emphasized that these methods benefit all students, not just students who are ELLs or have learning differences of other kinds." One participant could not "remember a time where [she or he] didn't feel that the content was relevant to teaching." Another participant emphasized this opinion by stating the course "offered some of the most effective and practical teacher [education] in the program."

Perceived Missing Elements From the Course

More time with children. It appeared in the data that participants appreciated the opportunity to work with groups of learners at a local elementary school during the final integrated course project, but that "in such a short teaching period (a 'learning arcade' format), opportunities to assess the impact of

[their] planning for ELL learning were minimized." It appeared that the participants wanted more time with actual ELLs: "It would be nice, if possible, to have a practical aspect to the class with ELLs," and that the topics and tasks covered in the elementary ALTL course should "be complemented by experiences in schools." For example, "some of the other [elementary teacher education courses] included 'in situ' learning experiences with opportunities to teach in classrooms in the district." By having more experiences in local schools, one participant felt she or he could have "learned about different programs that are in the schools and how we can get support for these students."

Readiness for students from diverse backgrounds. Participants also seemed to express concern that they didn't feel fully prepared for working with students whom they identified as from diverse cultural or refugee backgrounds. One participant wrote that she or he thought "it would be good to learn more about dealing with different cultures in the classroom and how to incorporate them so that every student feels heard and valued." This feeling was complemented by another participant stating "it would be beneficial to learn more about how we can support students in our class who are struggling with moving from a different culture (culture shock)." Along with knowing more about working with students from differing cultural backgrounds, it was also found in the data that participants didn't feel prepared to work with students who have suffered various kinds of trauma: "I think it would be beneficial to learn about, or learn about how to access resources on, having students in the classroom who come from war-torn countries or poverty or other serious issues that would impact their learning and their abilities to interact with others in the classroom." This participant acknowledged that "we learned about these areas in class," but she or he was looking for more: "It would be beneficial to go a little more in depth I think (especially now with more refugees coming into Canada)." The need for a longer course was also echoed by another participant who wrote that they "could probably have a second semester's worth of diving even deeper into related content."

Discussion

Although this study takes place in an area of British Columbia with relatively fewer ELLs compared to the major metropolitan centres such as Vancouver or Toronto, participants still reported encountering students from a wide variety of language backgrounds with varying levels of language proficiency. Participants also noted that students' oral skills appeared to outpace their reading and writing skills. These findings mirror the Cummins framework of language acquisition that moves from conversational language proficiency towards academic language proficiency (Cummins, 1981; Roessingh, 2006), with conversational language proficiency taking up to 2 years to acquire (Cummins, 1981) and academic language proficiency taking up to 5 to 10 years to acquire (Cummins, 1981; Collier, 1987; Hakuta, Butler, & Witt, 2000; Thomas & Collier, 2002). While participants would have been familiar with the Cummins (1981) model of language acquisition from their elementary ALTL course, it appeared that no explicit connections were made by the participants. While on the one hand the failure to connect may be a function of an online questionnaire that did not require the participants to make this explicit link, this lack of a connection perhaps points to the need in teacher education coursework for not only a focus on how additional languages are learned and but also a closer examination of what that additional language acquisition may look like in classroom settings while working with real children.

Participants further appeared to judge students' home language usage by commenting on the perceived effect or lack of effect speaking either English or another language at home had on students' English language development, and there were indications of surprise when speaking a language other than English at home did not appear to have a negative effect on the school language. One participant remarked that a student spoke English at home, and appeared to make a value judgement that this was a positive development, and then noted that another student didn't speak English at home and thus still

had developing levels of English. Other participants appeared to be surprised that home language use wasn't affecting English acquisition by including words like "but" and "considering" in their reflections. This surprise may have stemmed from the fact that their observations were challenging their previously held beliefs. Because of the topics studied in the elementary ALTL course, participants would have been aware of the common underlying proficiency model of bilingual proficiency (Cummins, 1981), according to which strong first language skills can support academic language development in a student's additional language. However, it is a common misbelief that first language use at home might negatively affect students' English as an additional language learning, and having parents' who speak a language other than English might impede students' additional language acquisition (Pu, 2012). These are powerful prior beliefs to overcome (Faez, 2012; Lortie, 1975; Pajares, 1992), and it is incumbent on teacher education programs to provide learning experiences, such as working with ELLs in classrooms and having opportunities to reflect on their pedagogical practices, for teacher candidates to interrogate their prior beliefs and move towards positively supporting ELLs as they meet their social, linguistic, and academic goals.

One beneficial element of the elementary ALTL course that participants noted was the value of having an array of practical instructional strategies ready for use with ELLs. These findings are in line with the interactive strategies that Jimenez-Siva et al. (2012) recommend be included in coursework for working with ELLs. Participants also remarked on their increased empathy for the challenges and struggles ELLs face as they are acquiring language and content. An increase in empathy has also been found by other researchers exploring teacher education experiences (Cho et al., 2012; Zhang and Pelttari, 2014), with empathy being a major contributor to teacher candidates' increased efficacy for creating quality learning experiences for ELLs. Similar to findings by Zhang and Pelttari (2014), this empathy was engendered for some participants through the language teaching methods project in which

teacher candidates took on the role of language learners in languages many of them were unfamiliar with. In addition to empathy, participants also felt that their confidence had increased and they had grown as teachers who were better prepared to meet linguistic diversity. Jimenez-Silva et al. (2012) identified fostering confidence as a key goal for ALTL coursework, with Pappamihiel (2007) pointing out that carefully planned coursework supported a boost in confidence for working with ELLs. Finally, participants noted how they felt the elementary ALTL course was beneficial because they could see connections to other profiles of learners and were gaining knowledge and skills that they felt would support all students. While these connections to other contexts were encouraging, it must be considered without devaluing the specialized knowledge, skills, and dispositions teacher candidates need to support ELLs in linguistically diverse classrooms. It is true that all teachers are teachers of ELLs, and supporting ELLs benefits all students, but teacher candidates still need to develop specialized capacities related to ALTL.

Missing elements were also noted in the data. In particular, participants voiced a desire to have more interactions with ELLs. Working with ELLs is a vital part of program preparing teacher candidates for linguistic diversity (Busch, 2010; Hutchinson, 2013; Jurchan and Morano, 2010; Pappamihiel, 2007). While participants did have one structured experience working with ELLs within the context of groups of grade level children toward the end of the elementary ALTL course, they recommended the course include more of these types of experiences. Furthermore, it has been noted that participants were not always making connections between theory and practice. As a result, the elementary ALTL course could incorporate more opportunities for teacher candidates to work with ELLs in schools, such as a case study project similar to the one promoted by Jurchan and Morano (2010) in which teacher candidates worked individually with ELLs in classroom settings or a community-based service learning project such as the one facilitated by Pappamihiel (2007) that included tutoring an ELL from the local

community. Increased opportunities to work with ELLs in classroom settings would better prepare teacher candidates for the socio-academic needs of these learners (Juchan and Morano, 2010).

Another area for greater inclusion in an elementary ALTL course is that of exploring the intersection of students' linguistic, cultural, immigration status, and class identities. Teacher candidates began to recognize the varying backgrounds of their students in terms of language, culture, socioeconomics, lived experiences, and refugee status. However, teacher candidates appeared to view students from refugee backgrounds as a homogeneous group. It is important to point out the wide variety of experiences that refugees bring with them to Canada, and the fact that students with refugee status have varying needs and identities. Some participants expressed a concern that they were not ready for the complex intersections of language, culture, social class, and immigration status they were observing in their school experiences. While these topics are introduced into the elementary ALTL course, a more in depth consideration of these factors is in order. However, these are also themes that need to be picked up across a teacher education program to better prepare teacher candidates for the rich diversity of students they will meet in schools.

Conclusion

It is important to note that there are a number of limitations to the current study. The data were gathered through an online questionnaire, with a relatively small number of participants, and those participants chose to complete the questionnaire, with the study perhaps attracting participants with particularly strong feelings. Because of these factors, no claims regarding the generalizability of the data are being made. Rather, the results reflect the experiences of a particular set of participants. However, relevant themes do seem to arise out of the data related to an informed understanding of an elementary ALTL course. These themes call for further investigation. The current study stopped short of the participants' longer practicum. Teacher candidate perspectives could be elicited after the 8-week

practicum to investigate the impact of the course on the practicum as well as the impact of the practicum on teacher candidates. In-depth interviews and focus groups could also be added, along with classroom observations, to examine in further detail how an elementary ALTL course impacts teacher candidate capacities to serve the needs of students in linguistically diverse classrooms. Follow-up interviews would also serve to clarify and explore statements made by the participants in the questionnaire.

The current study highlights the heterogeneity of ELLs teacher candidates are likely to meet in their school experiences. Teacher candidates need a wide range of capacities for today's complex classrooms. Perhaps most importantly, teacher candidates should be helped to move away from a deficit view of ELLs (Delpit, 2006). By examining teacher candidate reflections on the contributions an elementary ALTL course made to their capacities to support all students, including ELLs, in linguistically diverse classrooms, a richer picture emerges of what should and perhaps should not be included in such a course. At a policy level, teacher education programs can incorporate working with ELLs across the curriculum. The tentative readiness expressed by teacher candidates also indicates the need for ongoing professional development that follows teacher candidates into their careers as novice teachers. Finally, as ongoing revisions are incorporated into an elementary ALTL course and teacher education program in which it is housed, the voices of teacher candidates can play a vital role in creating elementary teacher education program experiences that best support the development of the knowledge, skills, and dispositions needed for linguistically diverse classroom settings.

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Appendix: Online Questionnaire

1. After reading this information, click “Yes” below to participate.
2. What is your gender identity? (e.g. male, female)
3. What is your year of birth? (e.g. 1990)
4. In general terms, describe your school placement. For example, grades, location, size, etc.
5. In general terms, describe the English language learners at your school placement. For example, countries of origin, grade levels, language abilities, etc.
6. Thinking about your school placement, what were the most beneficial elements of the additional language teaching and learning seminars you took in [your first year]? Please provide examples to illustrate your response.
7. Thinking about your school placement, what were the least beneficial elements of the additional language teaching and learning seminars you took in [in your first year]? Please provide examples to illustrate your response.
8. Thinking about your school placement, what was missing from the additional language teaching and learning seminars you took in [your first year]? Please provide examples to illustrate your response.
9. Is there anything else you would like to share about your experiences in the additional language teaching and learning seminars you took in [in your first year]?

Chapter 21: Curriculum Planning: The Need for Sensory Regulation Methods in Initial Teacher Education Programs

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Abstract

The responsibilities and expectations of the generalist teacher have grown as the cognitive, social, emotional, and behavioural needs of Canadian students increase and diversify. This paper responds to the inquiry, Are the capacities of current teacher graduates serving the needs of an increasingly diverse, technologically immersed body of K–12 students? How are traditionally marginalized students influencing the capacities new teachers need? The authors, being experienced teachers and teacher educators, emphasize the need for sensory regulation literacy and the use of sensory regulation methods to enable students to stay focused, calm, and alert in their learning. Initial teacher education programs have not typically included sensory regulation methods in their curriculum. Since generalist teachers using sensory regulation approaches in their classrooms are seeing a reduction in off-task behaviours, more concentration and focus by students, and improved academic outcomes, we advocate for the inclusion of sensory regulation methods in initial teacher education.

Curriculum Planning: The Need for Sensory Regulation Methods in Initial Teacher Education Programs

Introduction

The student population in Canadian public school classrooms is becoming more diverse. The responsibilities and expectations of the generalist teacher have grown as the cognitive, social, emotional, and behavioural needs of students increase and diversify. Teachers are expected to respond to the needs of *identified*[23] and *unidentified* students who require accommodations to succeed. Among these unique challenges are sensory regulation needs, about which the teaching profession is slowly becoming aware. We contend that curriculum planning for pre-service teachers needs to include sensory regulation methods in order for current teacher graduates to effectively serve the needs of an increasingly diverse, technologically immersed body of K–12 students. We begin by discussing pre-service teacher education within British Columbia. The paper then provides a review of the literature surrounding sensory regulation, including relevant terminology, the history of sensory regulation, prevalence of Sensory Processing Disorder (SPD), assessment tools, and best practices for teachers. We end the paper with a discussion of the need for educational leaders to include sensory processing methods and sensory regulation methodology in pre-service teacher education curriculum, particularly within the British Columbia educational context.

[23] The term *identified* or *designated* is used in British Columbia to describe school-aged children who have completed a psych-educational assessment and received a Ministry of Education designation.

Pre-service Teacher Education in British Columbia

In 2010, the BC Ministry of Education (formerly the British Columbia College of Teachers, BCCT) mandated two required courses for initial[24] teacher preparation—one focusing on teaching students with special needs and the other focusing on studies in Indigenous education. "This change is about making sure teachers of the future have the academic background and the tools they need to meet the demands of the education system moving forward" (BCCT, 2010, p.1). One three-credit course in special education is a positive addition to pre-service teacher education in BC, yet being so broad in scope it may not be enough to prepare beginning teachers for the range of learning needs of students who will be in their general education classrooms.

In most provinces of Canada, one three-credit course in inclusive or special education is mandatory for pre-service preparation, with some exceptions. This requirement for teacher certification is minimal, when considering the responsibilities teachers have for meeting students' diverse needs. The question about what to include within Initial Teacher Education (ITE) curriculum is a discussion taking place across the country. In *Characterizing initial teacher education programs in Canada: Themes and issues*, Gambhir, Broad, Evans, and Gaskell (2008) note that,

> issues of diversity and inclusion, rapid shifts in information technology, the expansion and deepening of a global economy, issues of civic governance, for example, have prompted discussion about the complexities of these issues in relation to teaching and learning, and in particular, the implications for initial teacher education programs. (p. 7)

Despite limited special education courses within initial teacher education (ITE), Canada continues to move toward inclusive education.

Inclusion is both a philosophy and a practice where *all* children, regardless of gender, race, language, or ability, are entitled to a quality education within their home schools. It is considered to be a

[24] In this paper we use "initial" and "pre-service" teacher education interchangeably.

process of responding to the diversity of learners (UNESCO, 2005). Therefore, it is incumbent upon ITE to provide sufficient training in diverse learning needs of the Canadian student population (Brownell, Ross, Colon, & McCallum, 2005; Perry, Phillips, & Hutchinson, 2006; Porter, 2010). Among these needs are sensory processing and regulation. We now provide background information on sensory processing.

Sensory Processing

Sensory processing is an overarching term that refers to the method the nervous system uses to receive, organize, and understand sensory input. "It is a neurological process that enables us to make sense of our world by receiving, modulating, organizing, and interpreting information that comes to our brains from our senses" (Pollock, 2009, p. 6). According to Mauro and Cermak (2006), a child may have trouble receiving sensory information, interpreting sensory information, combining information from different senses, deciding on a response, and executing that response (p. 2–3). Increasingly, educators are becoming aware of the sensory processing needs of their students, particularly when faced with children for whom regulating sensory processes is difficult. Children who have Sensory Processing Dysfunction (SPD) find themselves trying their best to compensate, often while demonstrating negative behaviours (Kranowitz, 2006.) The theory and practice of sensory processing methods originated with occupational therapists working with individuals with diverse disabilities (Biel & Peske, 2009). Teachers are benefitting by adopting methods from occupational therapists.

History of Sensory Processing Disorder

The American occupational therapist and developmental psychologist, Jean Ayres, pioneered the term Sensory Processing Dysfunction (SPD) in the 1950s and 1960s. In cooperation with parents of children with learning disabilities, she became the first researcher to develop sensory processing theory and intervention. Ayres recognized and described "hidden disabilities" or "dysfunction in sensory

integrative processes" (Ayres, 1968), which she later referred to as *sensory integrative dysfunction*. Ayres defined sensory integration as "the organization of sensations for use. Our senses give us information about the physical conditions of our body and the environment around us. . . . The brain must organize all of our sensations if a person is to move and learn and behave in a productive manner" (2005, p. 5). Additionally, Ayres (1974) asserts,

> The employing of neural mechanisms to enhance motor development is now well established; the current area of major growth and controversy lies in the use of neurological constructs to aid in understanding and ameliorating cognitive functions such as learning disabilities; the next step may well be a more fruitful attack on emotional and behavior disorders. (p. xi)

It is through the integration and organization of the various sensory inputs "from vision, touch, movement, muscle sense, hearing, taste, and smell, [that] we are able to interact comfortably and efficiently in work and play, and in caring for ourselves and others" (Koomar, Kranowitz, Szklut, & Balzer-Martin, 2004, p. 53). Predictably, then, it is clear to see how someone with an impairment in sensory integration (such as SPD) would be distracted and agitated in a constantly changing environment (Shanker, 2013). According to Biel and Peske (2009), maladaptive functioning in sensory processing may result in acting out behaviours, emotional outbursts, or tantrums.

Two of the main terms that occupational therapists, educators, and behaviour consultants use when working with individuals with SPD are hypersensitivity (over-sensitivity) and hyposensitivity (under-sensitivity). These terms are used to describe arousal states that are a result of environmental stimuli and sensory input (Serafini, Engel-Yeger, Vazquez, Pompili, & Amore, 2016). For example, in a case of auditory sensory dysfunction, a child may enjoy sounds at a certain decibel (loudness) and frequency and seek them out for calming, such as soft, slow music. This same child may detest sounds at a different frequency and decibel, such as a lawn mower, and as a result may act out by pulling his or her hair. "There are also children with mixed reactivity who may be over-sensitive to a sensation one

day, and under-sensitive to it the next day" (Biel & Peske, 2009, p. 18). Consequently, teachers need to understand how sensory regulation affects students, because "children can be hyper and/or hypo-sensitive to any one or more of the seven sensory systems of the body (tactile, vestibular, proprioception, visual, auditory, gustatory, and olfactory). These processing deficits are often linked to disruptive behaviours" (Texas Statewide Leadership for Autism, 2010, para 1). Children who are sensory craving, "have a nearly insatiable craving for sensory experiences and actively seek sensation, often in ways that are socially unacceptable," (Miller 2006, p. 28). Sadly, these children are often mislabeled as problem children because of their unpredictable responses to stimulating sounds, lights, smells, or touch. The sensory processing phenomenon is complex and needs constant assessment and monitoring. The prevalence of SPD has grown over the last decade.

Prevalence of SPD in the General Population

The prevalence of SPD is contentious, however. Ayres (1974) estimated that 5–10% of all children had sensory processing disorder. In more recent work, Koomar et al., (2004) estimate that between 12 and 30% of children experience sensory processing disorders. The renowned American occupational therapist Lucy Miller claims that approximately 14% of the general population lives with some form of SPD (2003). Sensory processing disorder is a complex and and vastly under-recognized, problem among preschool and school-aged children (Beil & Peske, 2009). Children who live with developmental delay, learning disabilities, or who have been diagnosed on the autism spectrum, often have SPD in addition to their primary diagnoses (Myles, Hagiwara, Dunn, & Rimmer, 2004). As well, these individuals usually exhibit hypersensitivity or hyposensivity in more than one sensory area (Baranek, 2002; Biel & Peske, 2009; Schaaf & Miller, 2005), increasing the challenge for teachers and students. Further, SPD is not present in just children with exceptionalities, but with non-identified

students in general education classrooms also (Miller, Nielson, & Schoen, 2012; Shanker, 2013). Teachers can become aware of these needs, starting with screening and assessment.

Assessment Tools

Evaluation of sensory processing within the field of occupational therapy is both an art and a science, incorporating "quantitative and qualitative procedures to arrive at a final conclusion, so that appropriate treatment recommendations can be derived" (Kinnealey & Miller, 1993, p. 474). Teachers can initiate and support the assessment process to ensure optimal functioning of their students (Koomar et al., 2004). Rowan has created a simple yet effective questionnaire to screen for sensory processing deficits in students at the start of every school year. The screening tool is a questionnaire focusing on attention and administered prior to and after the Zone'in program. It measures students' ability to initiate, maintain focus on, and complete academic tasks (2016). Using the pre and post questionnaires, the teacher is able to assess Zone'in program's efficacy at managing sensory regulation needs in the classroom. In collaboration with parents, patterns regarding focus, attention, and behaviour can be observed and documented. From here, parents and teachers can work with occupational therapists to design a plan of treatment.

Common assessment tools used by occupational therapists include the Sensory Profile, Short Sensory Profile, and Sensory Processing Three Dimensions (Koomar et al., 2004). Screening tools are often completed by parents or teachers. "These scales are report measures and therefore should not be considered a complete assessment; they only screen for indications that a comprehensive evaluation is needed" (STAR Institute for Sensory Processing Disorder, 2016, para. 7). The information collected from these checklists can assist teachers (and parents) towards a more in-depth process of observation, diagnosis, and management.

Methods for Managing Sensory Processing Disorder

Students with SPD may receive special services from an occupational therapist. Often school districts have occupational therapists as part of their support services; however, there are many rural districts that do not have these types of additional services. Where occupational therapists are able to assess and support students, the classroom teacher may be tasked with adjusting the classroom environment and teaching methods.

Occupational therapy. The best practices for remedying SPD have evolved over time through the field of occupational therapy and include numerous simple, yet effective, interventions which enable children to self-regulate in a constantly changing environment. Some common techniques that are practiced to calm or arouse students' mental states in specific sensory areas include:

- Visual: reducing fluorescent lighting, decreasing the clutter on walls in classroom, minimizing or omitting direct sunlight.
- Proprioceptive: applying "deep pressure" provided by a weighted blanket or bean bag chairs, facilitating heavy muscle work throughout the day—carrying books, buckets, moving chairs, erasing the blackboard, squeezing stress balls, wearing a weighted vest or scarf.
- Vestibular: jumping, physical/exercise breaks, therapy ball for sitting instead of chair, swinging, scooter boards, climbing or stair stepping.
- Auditory: wearing ear plugs to soften sounds, listening device for soft music or "white noise" to drown out background sounds while working.
- Olfactory: use of citrus and herbal tinctures.

(Compiled from Ayes, 1980; Biel and Peske, 2009; Koomar et al., 2004; Miller, Neilson & Schoen, 2012)

Singer (2015) conducted a comprehensive research study to determine how occupational therapists aid elementary teachers in becoming responsive to specific cases of SPD in ways that do not disrupt the general education class environment. In the findings, she states:

> It is clear that the physical space, severity and prevalence of the disorder as well as the classroom must be considered in order to determine the best fit for inclusion. It must be considered on a child-by-child basis in order to optimize learning and functioning for each student. Oftentimes, treatment may be used as a whole class approach in order to

> benefit the teacher, the students with SPD as well as the typically functioning students. (p. 50)

Although there is debate over the credibility of sensory processing research studies, evidence is emerging that reveals positive outcomes for students (Shanker, 2012, 2013; Zimmerman & Schunk, 2012).

Many of the strategies used by occupational therapists can be incorporated into the classroom climate to create a *sensory smart classroom* (Sparker & Sparks-Keeney, 2011). According to Shanker (2012), numerous meta-studies show that self-regulation is more important than IQ when it comes to predicting a child's ability to do well is school (p. 7). Thus, it is essential that teachers adopt these methods to develop self-regulation literacy in their students.

General education classroom. With the mandate of the full inclusion movement expanding nationally within Canadian school districts, the regular classroom teacher needs to be prepared to address the unique needs of all students (Brownell et al, 2005; De Boer, Pijl, & Minnaert, 2011; Forlin & Chambers, 2011; Perry et al., 2006). Indeed, even children with ministry designations are included in the general education classroom. Fuchs, Fuchs, & Stecker (2010) assert that the distinction between the regular classroom and the special education classroom has blurred. Children who are designated under the BC Ministry of Education's special needs categories are provided with a team of support through school district funding and resources. An individual educational plan (IEP) is designed by the special education teacher in cooperation with a team of professionals working with the student. Notwithstanding the creation of an IEP, relevant environmental and instructional adjustments can occur for any child who demonstrates sensory processing deficits, but who has not been officially assessed.

One way that general education teachers can meet the needs of all students, identified or not, is through the use of universal design for learning (UDL) and differentiated instruction (DI). The basis of UDL is to reduce barriers to learning that may occur when a learner interacts with the curriculum (Rose

& Meyer, 2002). The three ways that the curriculum can be adjusted are in representation (how material is presented), action and expression (how learning is represented), and engagement (making the learning meaningful) (National Center for Universal Design for Learning, 2016). A foundational assumption of UDL is that difficulties in learning occur not because of deficits within the learner, but because of problems within the curriculum delivery. It is therefore, incumbent upon the educator to make pedagogical adjustments so that all lessons are "accessible" to all students. We extend this somewhat to include the classroom environment, as well.

DI is another way of conceptualizing changes in instruction to meet student diversity. "Differentiated Instruction means tailoring instruction to meet individual needs. Whether teachers differentiate content, process, products, or the learning environment, the use of ongoing assessment and flexible grouping makes this a successful approach to instruction" (Tomlinson, 2016, para. 1). At its most basic level, differentiation consists of the efforts of teachers to respond to variance among learners in the classroom. DI means making changes to the processes, products, content, and environment to better match student learning preferences and abilities (Tomlinson, 1999, 2000). Although curricular goals may be similar between all students, it is necessary to utilize varied methodologies in a classroom to suit the individual needs of all children—that is to say, learning must be differentiated to be effective. "Differentiated instruction maximizes learning by considering students' individual and cultural learning styles, recognizing some students will require adjusted expectations, and offering different ways for students to explore curriculum and demonstrate learning" (Alberta Education, 2005, p. 1).

Developing a *sensory smart classroom* (Sparker & Sparks-Keeney, 2011) is another way for teachers to address classroom management and learning goals. Current brain research supports the

creation of a stable classroom environment where students can self-regulate. According to Shanker (2013),

> scientific studies of the brain tell us that learning occurs best when a child is calm, focused, and alert. Yet the child is continually dealing with various levels of physical, emotional, cognitive, and social stress that can make it difficult to attain and maintain this state. (p. 4)

Cris Rowan, a Canadian occupational therapist who works closely with educators, has created the Zone'in (Rowan, 2016) approach that is very simple and effective. Zone'in is derived from sensory integration theory and is designed to improve students' learning by "maximizing their attention and focus on tasks in the classroom setting" (Rowan, 2016, para. 2). Teachers educate students on how to take care of their own sensory needs. In terms of focus and attention, the students self-assess their current physical and mental state using a scale of 1–10. They are then tasked with taking the appropriate steps to bring their energy state to 5 (the optimal zone for learning). The results are increased attention, focus, and calm within the classroom. Behaviour management and hyperactivity issues are basically eliminated with this approach. Rowan's classroom practices are supported by Beil and Peske (2009), Shanker (2013), and Koomar at al. (2004). A *sensory smart classroom* (Sparker & Sparks-Keeney, 2011) combined with UDL and differentiated instructional methods is an excellent way for generalist teachers to meet students' diverse needs. The topic of sensory regulation is in constant discussion amongst educators regarding its efficacy.

Effectiveness of Sensory Regulation Methods

Over the past 3 decades, researchers and clinicians have critiqued Ayers' theory of sensory integration and the resulting interventions (Pollock, 2009). Scheinholtz (2001) reports that sensory integration theory is still considered "investigational" (p. 3), largely because of poorly designed studies with flawed methodologies (Heilbroner, 2005). Therefore, despite the large number of studies

examining outcomes of sensory interventions (Miller, 2003), the effectiveness of sensory integration remains inconclusive and controversial (Parham et al., 2007). These inconsistencies and the controversy present a dilemma for practitioners. “Therapists may feel conflicted as they observe improved quality of life for children and their families after intervention, yet are unable to offer definitive research to support their practice based on sensory integration principles” (Parham et al., 2007, p. 216).

While the validation studies of the sensory integration approach are sparse, the positive outcomes experienced by different populations of children and youth are too great to ignore. Sensory processing methods of intervention have been widely used by special educators and occupational therapists who work with children living with diverse needs (Case-Smith & Bryan, 1999; Pollock, 2009). Additionally, sensory regulation instruction that is being adopted by teachers in general education classrooms is having a positive effect on behaviour and attention (Koomar et al., 2004; Rief & Heimburge, 2006; Shanker, 2012, 2013; Singer, 2015). Screening, assessment, and intervention for SPD is becoming more visible in the average classroom. As this trend continues, teachers will (and should) seek and employ SPD methods to assist both identified and unidentified students.

Implications for Educational Leaders in Teacher Education

The issue of generalist teachers being prepared to teach children with special needs in an inclusive classroom is an ongoing challenge (Brownell et al., 2005; Perry et al., 2006; Porter, 2010). The British Columbia College of Teachers (2010) (now the BC Ministry of Education) had the right idea when they mandated at least one special education course in all teacher education programs. Yet, despite this requirement, many pre-service and newly graduated teachers feel unprepared to address the diverse learning (and sensory) needs of their students.

Avramidis and Norwich (2002) researched teachers’ attitudes towards inclusion and found teachers’ attitudes are affected by their limited knowledge base, due to a lack of preparation in ITE.

"Without a coherent plan for teacher training in the educational needs of children with special needs, attempts to include these children in the mainstream would be difficult" (p. 139). Teachers are able to support the movement towards inclusion in public schools if they are well prepared to work with an increasingly diverse student population. However, when teachers are not prepared to meet the diverse needs of their students, the goal of inclusion cannot be achieved. Singer (2015) agrees that inclusion is not always the best fit, especially if teachers are not well trained to meet diverse student needs. Conversely, Florian and Linklater (2010) found that teachers were committed to inclusion if they had gained the expertise needed to implement inclusive practices. Further, teacher skill and knowledge is not the only requirement—administrative support is also necessary (Mauro & Cermak, 2006). Hence, the literature points to the importance of appropriate teacher education for inclusion to be successful.

One way of supporting teachers to reach students with special needs and to meet the growing needs of typical children is to train pre-service teachers with sensory integration methods. Rief and Heimburge (2006) and Shanker (2013) are strong advocates of sensory integration practices for the generalist teacher and insist that an understanding of SPD is a teacher's best classroom aid. Kranowitz (2006) agrees that behaviour challenges decrease when sensory regulation methods are being utilized in the classroom. As behaviour management is an integral aspect of teaching, sensory processing theory and practice should be included in pre-service teacher curriculum.

Addition of Sensory Regulation Methods to Initial Teacher Education Curriculum

In British Columbia, ITE must include a mandatory course in special education in order for new teachers to have the skills to deal with the enormous student diversity in public school classrooms. We propose that this course include emerging research on the use of sensory regulation methods. The addition of this topic could be couched within a larger discussion of universal design for learning and differentiation of instruction in the general education classroom. Given that UDL and DI are typical

components of special education courses (or those addressing inclusion and diversity), it would not be a stretch to include sensory processing and sensory regulation as other learning "preferences."

Conclusion

The growing needs of students in the inclusive classroom have changed the demands placed on generalist teachers. In the profession today, teachers must accommodate the diverse cognitive, social, emotional, and behavioural needs of students. Two approaches for meeting students' numerous needs are universal design for instruction/differentiated instruction and the use of simple and effective sensory processing methods to create a *sensory smart classroom* environment (Sparker & Sparks-Keeney, 2011). The sensory regulation methods, founded by occupational therapists (Ayres, 1972) are presently being adopted by regular classroom teachers. The results are significant in establishing calm, alert, and focused students. With both UDL/DI instruction and sensory regulation methods, generalist teachers can feel more confident and prepared to meet the needs of their students in an inclusive classroom.

The literature review highlighted a dilemma regarding the efficacy and fidelity of sensory processing interventions. Critics of the sensory approach profess that the research is "investigative" and quite limited, and maintain that the methodology in sensory integration studies is flawed (Rief & Heilbroner, 2005; Pollock, 2009; Parham et al., 2007). Proponents of the sensory processing approach assert that sensory interventions assist individuals with central nervous system organization, resulting in a more focused and calm learning state (Kranowitz, 2006; Miller, Nielson & Schoen, 2012; Rowan, 2016) and improved academic outcomes (Shanker, 2012, 2013).

Although academic tension persists, the evidence supporting the use of sensory processing techniques for students with special needs as well as typical students outweighs the evidence that suggests that sensory integration methods are of no benefit. As Palmer (2014) notes, the current

challenge is for proponents of the disorder to show that it is distinct from other disorders, and prove that the treatments employed are reliable and effective at resolving SPD.

Sensory processing theory and practices are being implemented with a greater frequency by occupational therapists, behaviour consultants, speech and language pathologists, and educators. These methods are receiving more attention as identified and unidentified individuals demonstrate positive outcomes. Teachers (and students) in the general education classroom can benefit from using sensory methods as part of their daily routine, as long as teachers are given the preparatory knowledge and skills in pre-service teacher education programs (Koomar et al., 2004; Pollock, 2009). We suggest that this information could be incorporated into conceptual frameworks of UDL and DI, which are typical topics in courses which address student diversity and inclusion. It is up to educational leaders in teacher education programs to add this significant body of knowledge to the curriculum. The teachers and future students in inclusive classrooms will benefit greatly from these innovative and effective practices.

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